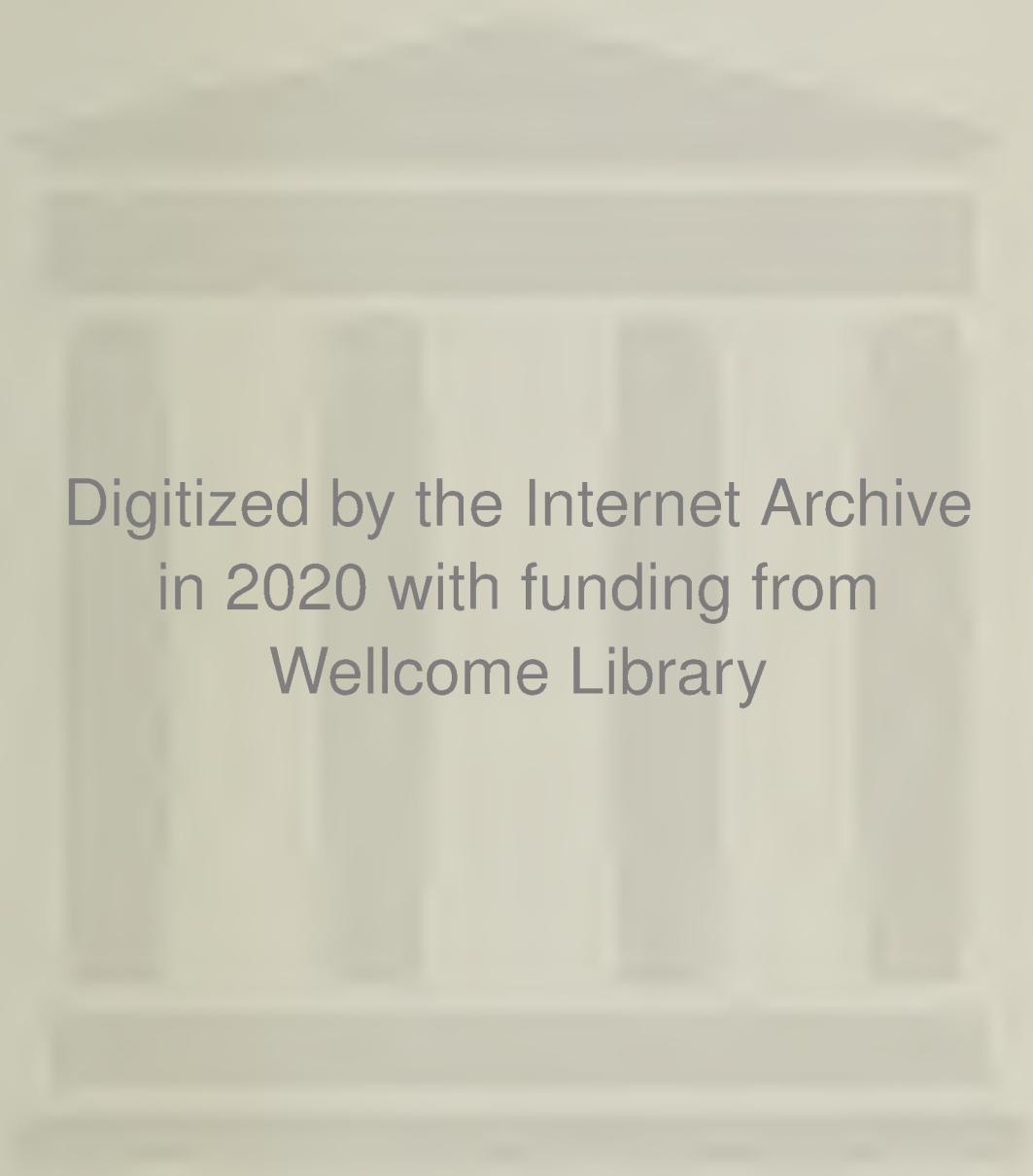
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OF THE

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OF

BOMBAY.

FOR THE YEARS M.DCCC.XLIX AND M.DCCC.L.

Bombay:

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Page 144, line 8 from top, *for* "where is" *read* "where there is"

„ 164, line 18 from bottom, *for* "when" *read* "When"

„ 167, line 13 from bottom, *for* "observation" *read* "observations"

„ 174, line 16 from top, *for* "femnal" *read* "femoral"

„ 175, foot note, line 3, *for* "ulcers" *read* "ulcer"

„ 177, line 14 from top, *for* "112" *read* "114"

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TRANSACTIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY

OF

BOMBAY.

1849 & 1850.

Article I.

Medical History of the 1st Bombay European Regiment (Fusiliers), during its Service in the Punjaub in 1848, 1849, *and* 1850. By F. S. Arnott, M. D., Surgeon of the Regiment.

Presented April 1851.

The resolute and somewhat unexpected opposition met with before Mooltan by the Bengal Force, Edwardes' brave Army, and our trusty allies, the Daodputras, in August 1848, their ceasing to act on the offensive, and ultimate retirement "to take up a dignified position" at a distance, on the 14th of September, of which event the intelligence reached us at Kurrachee, even before the arrival of the express, fully convinced us that we would be required ere long to march up the Indus. As anticipated, an order soon appeared, directing a Bombay Force to assemble at Roree, and, along with other corps, the Bombay Fusiliers were warned for active service.

After the usual delays consequent on a large force moving at once,—the want of carriage, and the alterations of arrangements,

&c.—the Regiment marched for the rendezvous by wings, the Left Wing on the 11th of October, under the two Assistant Surgeons Drs. Calder and Bean, and the Head Quarters' Wing on the 17th, Lieut. Colonel Mignon in Command, and myself the only medical officer. No sick or delicate man was allowed to accompany the Left Wing; and so eager were all for service, that the Right Wing marched out of Kurrachee leaving behind only thirteen sick men.

Nothing particular occurred to either wing on the march through the barren and dreary desert, stretching from Kurrachee to Tatta, at which place the Left Wing arrived and embarked on river steamers on the 15th, and the Right Wing on the 21st of the same month.

The Left Wing reached the rendezvous on the 30th of October, and the Head Quarters' Wing joined it on the 7th of November. The men were in high spirits, our sick list was small, and we had met with no mishaps on the river beyond the usual accidents to the steamers, which caused delay, and in one of which one of our men, an expert carpenter, had rather a narrow escape. He was in the wheel, finishing off some work, when the steam was put on, and he went spinning round in a rather unexpected fashion. His situation was an awkward one, but he retained his self-possession, and clung to one of the spokes of the wheel, and when his situation was discovered, and the steamer stopped, we found that he had escaped with a few bruises and a good drenching. The Left Wing had been less fortunate: a man descended to, and was standing upon a small half-sunken piece of the bank, filling his canteen, when the treacherous ground sunk under him, carrying him along with it, and though numbers were close to him, and assistance was instantly ready, he was never seen again.

The men marched in forage caps with white padded covers, red shell-jackets, cotton shirts, barrack change trowsers, socks, and thick strong highlows. At night they slept upon a small numbda and carpet, and had for covering two camelines and their great coats, which was all the bedding that could be included in the forty pounds of carriage allowed to the soldier; but at Roree, where the cold was intense, and the encamping ground was cold and damp, these afforded a very insufficient degree of protection,

and consequently a razai, or thickly-padded quilt, was provided for every man, and the comfort and protection they experienced from them, not only on the march, but afterwards in the trenches and field-works before Mooltan, need not be described.

From the day we left Kurrachee, arrangements were made for giving the men a pint of coffee every morning at day-break, and which on the river they always received before the steamer unmoored, at all times with great relish. Similar arrangements were made on our leaving Peshawur, and greatly to the satisfaction of the men they had this refreshment every morning as the day dawned. When on the river, the men had much reason to complain of their rations. The biscuit was so bad as often to lead to its being rejected, and indeed no man ever ate it who could get anything else; and the one pound of meat, which is at no time sufficient for a day's consumption, was now, from its leanness and general indifference, found quite inadequate, and there being no certain bazaars where they could supply the deficiency, the men suffered a good deal, till at length an order was issued directing the meat ration to be augmented to a pound and half; and this quantity was continued till after the Battle of Goojerat, when, from its not assimilating with the Bengal allowance, it was again reduced to one pound.

As already stated, the Right Wing arrived at Roree in good spirits and with a small sick list, but unfortunately sickness had commenced in the Left Wing, which had already several serious cases. Their camp was pitched on the sands of the river, subject to the inundation, and a few months previously had been overflowed by the waters of the Indus. The ground was still cold and damp, and in spite of straw issued for bedding, fevers, catarrhal complaints, and bowel complaints, were beginning to prevail, and there were besides one or two cases of hepatic disease. We soon afterwards changed our ground to a more dry and comfortable spot, but three men had already suffered so much that I deemed it necessary to recommend their return to Kurrachee. Sickness continued to increase a good deal, and venereal affections also prevailing to a great extent, our sick list became so heavy that I was under the necessity, in consideration of the limited quantity of carriage allowed, to advise our sick, to the

number of seventy-two, to be dispatched up the river in steamers, which was readily acceded to; and as a steamer was soon afterwards available they fortunately reached Mooltan a day or two after the Head Quarters, and without the loss of a man, and indeed most of them were again fit for duty.

Soon after we reached Roree, General Auchmuty arrived and took command, and the rest of the force gradually assembled. The preparations for our march went on very tardily, so that we did not start for Mooltan till the 29th of the month. During this period we had ample time to complete our arrangements for the campaign. Our field equipment we were not allowed to indent for at Kurrachee, and had now to do so. I may mention that our strength, by a wise and well-timed resolution of the Bombay Government, was here augmented to 978 bayonets, by the arrival of one hundred well-drilled and efficient volunteers from the 2nd European Light Infantry. The Superintending Surgeon and a number of the officers from the Staff also joined us on the 27th; among these was Captain Rawlinson, in such a pitiable state of health that I could not but advise his immediate return. A few months previously he had had an attack of hepatitis, followed by dysentery, and when he joined the regiment laboured under fever, and was reduced to a shadow. He therefore returned to Sukkur next day, subsequently went to Bombay, and was ordered home, but alas! he never reached his native country, as he died at sea. I was here deprived of the services of Dr. Calder, who was detached in some grain-boats with sixty sepoys. Even when the services of medical officers were least required I had never before heard of one being sent on such duty, but at a time when the regiment was marching on active service, and I had actually made application for another Assistant Surgeon, it was an arrangement I could not in justice to the corps silently submit to. I consequently remonstrated, and pointed out that Dr. Bean had been in delicate health since our arrival at Roree, &c., but the Superintending Surgeon had not arrived, and the arrangement took effect, notwithstanding my representation; and, as I had anticipated, Dr. Calder did not rejoin till the 16th of January, when the operations before Mooltan had nearly come to a close. The regiment was thus left without an Assistant Surgeon, as Dr.

Bean had to accompany the invalids in the steamer, but fortunately two Assistant Surgeons, who had been sent up from Bombay on general duty, arrived, and were attached to us the night before we left Roree. Dr. Rimington remained with us during the whole campaign, but Dr. Boycott got a charge on our arrival at Mooltan.

Our Camp meanwhile presented an appearance of considerable bustle and animation, from fresh arrivals, the active preparations going on in the commissariat and other departments, &c.; and the tents were struck, and again pitched, and the men, by way of inuring them to exposure, were kept standing in the sun, all to the sound of a bugle, in quite a novel and particularly warlike manner; to which might be added various other recreations of an equally martial character, all supremely edifying, and calculated no less to preserve the men from *ennui* and idleness than to thoroughly initiate them into the mysteries of "grim-visaged war," to which they were not much longer to remain strangers; but to what extent they profited by this schooling I am not prepared to say. At length, however, the tedium which, in spite of all these occupations, every one began to feel, was dispelled by an order to march. General Auchmuty, by an ulterior arrangement, had gone back to Sukkur, and Sir Henry Dundas had again taken the command; and on the 29th we marched from Roree, all eager to reach the scene of action, and having the most unbounded confidence in the capacity and fitness for the command of our gallant leader.

Return showing the diseases which prevailed in the Regiment at Roree, for November 1848.

Strength.	Fever.	Hepatitis.	Dysentery.	Catarrhus.	Rheumatism.	Syphilis.	Other Diseases.	Total.
978	73	2	18	9	4	88	42	236

Our route ran in a NE. direction, between the river and the Great Desert through the districts of Ali Morad of Khyrpoor and Gotkee, and, at Subzulcote, entered Bhawul Khan's territory,

in which it continued until we crossed the Sutledge, a few miles above its junction with the Chenaub, at Phuladpoor. For a few days it kept near the banks of the river, and was through deep loose sand, but gradually it diverged, and at times skirted the border of the desert, where the soil being a stiff hard clay, marching became much easier. The road was clear, wide, and level, though in different places crossed by numerous canals, most of which at this season were dry, except about Khanpoor, and in one or two other more favoured districts. The country was perfectly flat, not a hill and scarcely a stone having been seen since we left the lime-stone ridge on which Roree, Bukkur, and Sukkur are situated. Many of the towns were thriving and populous; provisions and forage we found everywhere in great abundance, and the water was plentiful and good. The Jewarree crops had been cut, and the winter crops had not yet been sown, but the numerous stack-yards and large tracts of stubble gave the country in many places a fine, fertile, and well-cultivated appearance; though in other places it appeared neglected, sterile, and bare, or overrun with jungle, and in such places the soil was often strongly impregnated with salt, seen in a state of efflorescence on its surface. Near the river the tamarisk everywhere prevailed, mostly stunted and small, but at times occurring as elegant and stately trees: elsewhere the babool, bhair, and jewassy were chiefly met with, the maddar and prickly-pear, so abundant in Lower Scinde, gradually disappearing. From Phuladpoor to Mooltan the country very much resembled what we had already passed through, having numerous and noble watercourses, but still capable of great improvement. During the first march from the Sutledge we passed through some strong jungle of high rank grass, reeds, and well-grown trees of babool, jhow, &c.; but towards Shoojabad, and as we approached Mooltan, the country was better cultivated and very productive. Shoojabad, a large, strong, and well-fortified town, had been constituted a store depôt, and the road from it to Mooltan had become such a thoroughfare that it was completely cut up, knee-deep in sand, and very heavy to march over. On the 17th of December we crossed the Sutledge by a bridge of boats, and on the 21st we joined the Bengal Force at Soonuj Khoond, about six miles from

Mooltan, having completed a distance of 270 miles in 23 days, with one halt. We had had only one death : the men were very healthy, and the weather, with the exception of one wet night, had been and continued to be pleasant and delightfully cool, ice being not unfrequently found in our gindees in the morning. At about eight o'clock this night the garrison of Mooltan fired a royal salute in honor of our arrival, or in defiance.

As mentioned, the detachment of sick sent up by the steamer rejoined the corps almost all fit for duty, but a few had to be re-admitted upon the sick list; among whom was Private George Shawyer, who had been reported sick on the 28th of November with dysentery, and in whom hepatic symptoms soon afterwards developed themselves. He was bled, cupped, &c., but the progress of the symptoms was not arrested, and by the 26th of December an abscess, pointing superficially, was very distinct under the false ribs to the right of the linea alba. He was not very much reduced, his appetite was tolerable, and he was in good spirits; and on the 28th an opening was made into the abscess by a trocar and canula, thrust obliquely through the parietes of the abdomen, from below upwards. On withdrawing the trocar, about a pint and a half of thick pus escaped slowly through the canula; the canula was then withdrawn, the wound dressed with lint, and he was put to bed. Next day a considerable quantity of matter had again accumulated, and for another day or two the tumour gradually enlarged. The orifice, however, re-opened of its own accord, and again there was a considerable discharge of matter, and as it did not again close there was afterwards a constant oozing from the wound, with relief to the patient. On the 4th of January the regiment was unexpectedly ordered to take up new ground, and this man with the rest of our sick was transferred to the General Hospital. He was frequently seen, however, and fancied to be going on remarkably well, and on the 27th of January, with the wounded, left Mooltan in a steamer, but I am sorry to add that his death was reported on the 5th of February from Sukkur. Under more favourable circumstances I think this poor fellow might have been saved, but the repeated removals from one place to another, when rest was so indispensable, took away all hope.

On the 22nd and 23rd the men, beyond somewhat heavy guard duty, had nothing to do, but on the 24th five companies went out with a reconnoitring party toward the East face of the Fort, but though a somewhat sharp fire was kept up, and some shots nearly reached the mounted videttes, none came near us.

On the 25th the Bengal column returned to the position it occupied some months before at Seetul-ke-Maree, in front of Mooltan, but of course well beyond range of shot, and on the following day we took up a position on their left. On the 27th a general assault on the outworks and suburbs took place; the 4th Rifles and Left Wing of the Fusiliers forming the left attacking column. About half-past eleven A. M. they left the lines, and in about an hour afterwards the firing commenced. At first it was slack and desultory, but as our force penetrated to the different positions held by the enemy it became brisk and incessant. By the evening the suburbs were completely cleared, up to the walls, outside of which not a man dared to appear, but from the walls they kept up a constant though nearly harmless fire during the whole night. Our troops lay upon their arms in the different positions they occupied during the night, and suffered much from the cold, which was piercing. The batteries now took up their various positions, and the fatigue and exposure of our men became severe, as they were employed in the trenches as working parties or for the protection of the batteries. During the operations of the 27th we had 23 men wounded and one officer.

As the operations of this day could not take the troops to any great distance from our camp, I arranged to have all the wounded sent to Hospital, and I am happy to say the arrangement proved most satisfactory. Dr. Rimington accompanied the detachment, provided with cordials, field tourniquets, bandages, &c. and all the doolies and bandsmen to remove the wounded, and Dr. Bean and myself remained at the Hospital. About 3 P. M. or half-past 3, the first detachment of wounded reached the Hospital, from which time till 9 P. M. they were constantly coming in; but as little fighting took place during the night all the wounded

were dressed and in bed by 10 o'clock. The wounds may be classed as follows :—

By round-shot.....	2
„ musket-shot.....	18
„ sabre cuts.....	4

The round-shot in one instance, after carrying off a sepoy's head, grazed a soldier's fore-arm, causing little pain at the time, but great subsequent echymosis, swelling, discoloration, and loss of power of the entire extremity, with considerable pain from the abrasion of the skin, &c. The other, after passing through a horse, struck, when nearly spent, a man's heel. For some time he did not suffer much, but afterwards subacute inflammation, pain, and thickening about the os calcis set in, rendering it necessary to leave him behind.

The sword-cuts were four in number; one fine young fellow, as he bayonetted a man, received a back-handed cut from him which nearly severed the thumb and fore-finger of the left hand. These it was necessary to amputate, and he afterwards did very well, having three very useful fingers. Another poor fellow, as he jumped over a wall, was attacked by a man who sprung up behind, and inflicted some frightful gashes upon him; he was about to repeat the blow, but the ready sword of our ever-active Adjutant gleamed in the air, and in an instant the Seikh swordsman rolled a headless trunk at his feet. As it was, the poor fellow was dreadfully mangled: one cut removed almost the whole right cheek; another penetrated deep into the upper and back part of the right shoulder; the left ear was cut to atoms, and one horrible gash stretched from the left temple to the back of the head, severing the ear, the mastoid process, laying bare the brain, and descending deep in the neck. Simple dressings were applied to the cheek; stitches, straps, and bringing the arm to nearly a right angle with the body, brought the gaping wound on the shoulder into good apposition; extensive stitching, straps, and bandaging were required for the wounds of the left side of the head and neck, and for many days this poor fellow had every prospect of an ultimate recovery, but about three weeks afterwards he sank.

The musket-shot wounds, in number 18, were—

In the	head	3
„	throat	2
„	chest	2
„	abdomen	4
„	extremities	7

One wound in the head proved almost instantly fatal; one was slight; the third, exactly in the centre of the os frontis, was deep and ragged, but on examination no ball could be discovered, nor injury of the bone; and though the man continued wild and excited for some time, he gradually recovered, and would have accompanied the Regiment onwards but for a swelled testicle he got ere we left Mooltan; he is now performing his duty.

None of the injuries of the throat were severe, as they were either from spent balls, or by balls turned off by the stock or its buckle.

Two men were wounded in the chest: in one the ball entered under the left breast, and passed out at the back; he expired in the night. In the other the course of the ball could not be exactly ascertained, but emphysema and other symptoms indicated serious injury of the lungs. He was a powerful man, and stood the strictest antiphlogistic treatment admirably, and, as bad symptoms arose, they were successfully combated by depletion, &c. About the end of January he left Mooltan for Kurrachee, reduced to a shadow of his former self, but not without hopes of recovery.

The wounds of the abdomen were the most distressing we met with. The poor sufferers seemed to endure greater agony, bodily and mentally, then any others, and they seldom survived above twelve hours. The wounds which did not penetrate the parietes of the chest and abdomen were of course attended with little danger.

The wounds of the extremities were numerous, and some of them severe; in most instances the balls had either passed through or were easily removed. In one or two instances they could not be traced, but came away when suppuration came on afterwards. In some cases there was extensive destruction of the carpal and metacarpal bones.

The duties of the medical officers now became very laborious, as one Assistant Surgeon was always on duty at the batteries. They went alternately for twenty-four hours at a time, and, having only every second night in bed, had of course to rest the following day, and I had to carry on the rather heavy Hospital duties.

On the 28th we had three companies on duty, and five men were wounded; on the 29th we had again three companies on duty, and two men were wounded; on the 30th one company was on duty, and one man was wounded; of these, one man, shot in the chest, died on his way to Hospital; another, shot in the neck, the ball descending into the chest, died that night; one received a ball near the frontal suture, which carried in with it about its own dimensions of the frontal bone, penetrating the cerebrum in an anterior and descending direction; its course was towards the right orbit, but of course could not be traced. The ball was small, the edges of the bone rugged, and when a probe was used, the cerebrum, tinged with blood, oozed out freely. There was a little stupor about the man, but he walked unassisted into the Hospital tent; when addressed gave sensible answers; and when his wound was dressed walked with assistance to his bed. Next day his bowels were freely acted on by medicine; he was freely bled, and no bad symtom showed itself. On the following day he had a great inclination to sleep, but further depletion seemed to remove all tendency to congestion. From this time to the 4th January he was carefully looked after, and in spite of prognostications seemed going on well. On the 4th January he was sent with the other wounded to the General Hospital, as our brigade was ordered to take up ground on the other side of the fort. After this I could only see him occasionally, but for some time he seemed to progress favourably. Towards the end of the month he was sent on board a steamer with the other wounded, and soon afterwards died. I applied to the medical officer in charge to send me a report of the post mortem examination, but he had died a day or two before I wrote, and none had been kept.

On the 31st the Regiment had orders to hold itself in readiness for a particular service; but the breaches being reported not yet practicable, the men remained in their lines; on the 1st

January a similar order appeared, but again the breaches were pronounced impracticable. On the 2nd of January the city of Mooltan was taken by storm. On this day our Hospital arrangements were the same as on the 27th December; and although the assault did not take place till 3 P. M. I am happy to say every man wounded on that day was dressed and in bed before 11 P. M. At one time they crowded upon us rather fast, but Drs. Wilmot and Meade kindly volunteered their assistance, and few were kept waiting for any length of time.

Between 12 and 1 every available man, and every officer with the corps fell in; and such was the enthusiasm among the men, that several who had been wounded (slightly) on the 27th of December again joined the ranks, and I had difficulty in keeping behind others who were more severely wounded. Some of the officers employed on the Staff also joined their regiment to be present at the storm. About 1 o'clock the regiment left the lines, and marched directly towards the Koni Boorj, leaving the Mundeeawa on the right, between which and the breach they took shelter in some old enclosures, waiting for the preconcerted signal. At 3 the order was given, and the regiment, in column of sections, advanced by a road leading to the Koni Boorj, sweeping under which to the right, the bottom of the breach was soon reached.

Up to this time the batteries had been employed in demolishing the defences, in keeping down the fire from the walls, and improving the breach, &c.; and so effectual had been their fire, and so admirable was the practice of the riflemen of H. M.'s 60th Regiment stationed to protect the advance, that not a man of the Fusiliers had been wounded. As yet not a sound had passed their lips, and not a shot had been fired by them.

At the bottom of the breach the leading company got the word "right shoulders forward," and wheeled as steadily as on a parade, and at the same instant a simultaneous and deafening cheer, from nearly nine hundred determined men, rung through the devoted city, drowning even the thunders of the artillery, and sending a thrill of horror into the awe-struck garrison. This stentorian cheer was afterwards spoken of, by one

whose name will ever be associated with the deeds of this day, as being worth three hundred bayonets.

Every gun had now been turned upon the breach itself; and as the men began to clamber up the difficult and nearly perpendicular ascent, through crumbling rubbish, reduced almost to an impalpable powder by round shot and shell, a volley from them, of grape, canister, and roundshot, whistled over their heads, skimming the crest of the breach, and carrying everything before it. Now was a moment of intense excitement: every gun was hushed, and even the artillerymen in the batteries stood in breathless anxiety, awaiting the result. They were not kept long in suspense, however, for the breach soon bristled with the bayonets of our men, and the British banner flaunted on the walls of Mooltan.

As the heads of our men appeared over the top of the breach, a volley from within was directed at them, but luckily, from having been fired too soon and too hurried for a correct aim, it flew harmless over them. As they gained the summit a somewhat unexpected difficulty presented itself. A deep trench had been dug under the breach, extending from one end to the other, and swarms of armed men were prepared to dispute its passage. But this was no time for wavering or hesitation: many of these brave fellows were at once shot down, and nobly did our men second the impetuous valour of their daring leader, as, again giving the word "Forward!" he sprung among the enemy. Several of the defenders here fell under the powerful arm of the gallant Leith, who, in an endeavour to save one of his men, was himself severely wounded, and in dealing a death-blow to another expert swordsman his sword was shivered to pieces. He had now four wounds, and stood defenceless, surrounded by brave and desperate enemies, and at last, faint and exhausted from loss of blood, he fell, when numbers rushed upon him, and, in the words of one of themselves, "an hundred swords were uplifted over the fallen warrior, but the crossed bayonets of his devoted followers presented an impenetrable barrier, and the blows rung harmless on the faithful steel." He was lifted up, and taken to the rear.

The combat still raged furiously, the enemy keeping their ground bravely; and as every house and avenue was occupied by

armed men, the struggle was well maintained by them, but the stream of bayonets continued to pour over the breach : many of the defenders had fallen, and the rest began to retire. Still, however, a hot contest was kept up,—the enemy, with the utmost bravery, disputing every inch of ground, from house to house, and from street to street ; and being reinforced by the party placed to defend the Delhi Gate, and encouraged by the report of that attack having been repulsed, they again attempted to renew the battle, seeming to prefer death where they stood rather than save life by an inglorious retreat ; so that, before the opposition hereabouts had been surmounted, and the enemy driven fron the adjacent houses and enclosures, Major Tapp, and Lieutenants Dansey and Grey had all been wounded, and taken to the rear ; but nothing could stand against the determined valour of our men ; the opposition again began to flag, and they rushed onwards, giving the enemy small leisure either to rally or take a correct aim, and they pursued them through the town, guided in the direction by the flying parties they fell in with, to the walls on the opposite side, over which in their endeavours to escape many threw themselves headlong. One party in hot pursuit were on the point of making a dash at the fort, and entering the gate with the fugitives, and were much chagrined on being recalled on account of the want of support, and lateness of the hour. In about three hours, and just as it became dark, the fight ceased, and the whole town was in our possession.

It was intended to storm by two breaches, H. M.'s 32nd Regiment leading the Bengal storming party, and the Bombay Fusiliers leading the Bombay column of attack ; unfortunately the breach by which the Bengal column was expected to enter was found difficult, and it failed in effecting an entrance, so that the Bombay column had fought its way through and taken possession of the whole town ere the Bengal troops got in. From the diversion failing, of course the brunt of the action fell upon the Fusiliers, and, as was to be expected, the list of casualities was heavy. Fortunately the Bengal column at length followed the Bombay column through the breach they had won, and, thus reinforced, our wearied men were relieved of much of the Guard duty for the night.

Six officers and fifty-eight men were wounded on this day: of the former, one received four wounds, one sword-cut nearly severing the left hand above the wrist, with another deep gash nearer the elbow, rendered it necessary to amputate above the higher wound, but fortunately below the elbow-joint; there was another sword-cut on the right fore-arm, and a musket-ball in the right shoulder, near the joint, the course of which up to the time of his leaving Mooltan, on the 27th January, could not be traced. This stump did very well for some time, and was nearly healed when he left Mooltan, but I believe it gave a good deal of trouble afterwards, though I cannot state how. Previous to his leaving Mooltan he suffered much, and was in great danger from the right shoulder, but ere he went on board the steamer it had considerably improved. This gallant officer is now in England, in good health; he has got a very useful artificial hand and arm, and can ride, shoot, and enjoy himself. The ball in the shoulder has not been discovered, but does not prove a great inconvenience to him. Another officer, whose right elbow was shattered by a round shot, had also to undergo amputation above the elbow; he recovered without a bad symptom. The other officers received slighter wounds, and soon returned to their duty. The wounds on this day may be classed as follows:—

By	round-shot.....	2
„	musket-shot.....	31
„	sabre and bayonet wounds.....	19
„	contusion, chiefly sustained in an explosion that took place at night.....	12

One case of wound by round shot was of a sad and horrible description, from the very little that could be done for the poor man, and the melancholy state of disfigurement he was in. The whole of the upper maxilla, nose, and palate, were completely smashed and carried away; the lower jaw had escaped, as also the eyes, so that he could discern objects, and he was quite sensible. For several days he seemed to be doing tolerably well, but at length delirium and other symptoms of cerebral inflammation set in, and death relieved him from his sufferings.

The sabre-cuts were received chiefly about the head, face, and

arms, and mostly did well, though some of them were tremendous gashes.

The musket-shot wounds were as follows :—

In the head.....	2
„ throat	2
„ chest	2
„ abdomen.....	4
„ extremities.....	21

All the musket-shot wounds of the head and throat were slight, and did well. One of these, of the chest, did not penetrate that cavity, but gave trouble from extensive abscesses having formed, and the ball, or rather slug, not being discovered. The other case at first appeared of an alarming nature, but by free depletion, &c. the bad symptoms were removed, and he afterwards did very well. Two of the wounds of the abdomen proved rapidly fatal. In the other two the balls merely penetrated the parietes without injuring any of the viscera. The wounds of the extremities mostly did well. In one instance a slug struck near each knee ; extensive inflammation extending to the joints, and suppuration, carried him off after going on board the steamer Two men died from injuries received in the explosion. In one, paraplegia was almost an immediate effect ; the other seemed to die from the extensive contusions. Our men were relieved from duty in the city of Mooltan on the afternoon of the 3rd, and on the 4th the 2nd Bombay Brigade was ordered round to Sawun Mull's Garden, with the view, it was supposed, of acting as a flying brigade, as occasion might require. On the 5th the Bombay Fusiliers were warned for secret service, and marched out next morning over much broken rough ground, through gardens, over water-courses, &c., under the Fort, towards the Bohur Gate, on the West face. Two thousand Rohillas were expected to march out of the Fort, and the Fusiliers were to see them lay down their arms, and escort them to a place of safety, but when we arrived near the Gate, about day-break, a messenger met us to say they had changed their minds, and for the present we were to return to whence we came. Our return seemed likely to be an awkward matter, however, as it was now daylight, and we were well within range of the guns of the Fort

but whether it was that we were not observed, or they were not prepared for us, we got home without a shot being fired at us.

The duties of the regiment now consisted in defending the batteries, or in working parties in the trenches. On the 7th the Left Wing was on duty at the batteries ; on the 9th fifty men ; on the 11th two hundred men ; 12th, five companies ; 13th, three companies; 14th, two companies; 16th, one hundred men ; 17th, fifty men ; 18th, three companies ; 19th, one hundred men.

The regiment was again selected for the storm of the Fortress, which was expected to take place on the 20th. The breach facing the town, and at the time deemed barely practicable, was to be taken by the Bombay column, H. M.'s 10th Regiment leading the Bengal storming party at the breach towards the N. E. angle ; but the attack was deferred till the following day. On the 21st it was again deferred. On the morning of the 22nd we marched off at 3 A. M., the night being cold, wet, uncomfortable, and dark, and at daylight found ourselves at the Dowlut Gate, under the wall, to the right of which we were formed up, pending negotiations with Moolraj and the garrison for the surrender of their strong-hold. Here we remained standing in the mud till between 9 and 10 o'clock, when Moolraj appeared at the Gate, and surrendered at discretion. His troops soon followed, laying down their arms as they arrived at the Gate, and as the last passed through the street formed by our men, and the unfortunate captive was removed to his place of confinement, the drizzling rain ceased, and the wet, uncomfortable morning was succeeded by a bright warm sunshine, and we returned home every one in high spirits at the termination, on the twenty-seventh day, of this protracted and memorable siege.

Between the 2nd and the 22nd we had several accidents to men working in or guarding the trenches. Of these I may mention a man who, on the 3rd, received several cuts and contusions of the head, which terminated in erysipelas and death. On the 4th a man received a number of slugs about his chest, which did not penetrate that cavity, but gave rise to deep and extensive suppuration and ulceration. On the 9th a man received a bayonet wound near the left axilla, which also proved very troublesome.

On the 11th a man received a musket ball through the head, which was instantly fatal. On the 13th a man had a comminuted fracture of the humerus, from a round shot, which did well in splints. Two bheesties had their legs shattered close to the knees by round-shot, and both underwent amputation of the thigh. A man received a wound on the 18th by musket-shot, which struck him near the chin, descending to the neck, and could be traced by the probe for about five inches downwards towards the chest, but could not be followed further,—the trachea was wounded, as he breathed freely through the wound. The antiphlogistic treatment was strictly followed, and for the few days that he remained at Mooltan previous to proceeding down the river with the other sick, he was apparently doing very well. Whether the ball was discovered or not I don't know, but he ultimately recovered, and was pensioned; and on the 20th a man had a musket-ball through his left hand, which, up to the time of his leaving Mooltan with the other sick, was doing well, under the antiphlogistic regimen and cold water dressings.

I may here mention that on the 22nd my hospital arrangements, as on the day we went round to the Bohur Gate, were somewhat different to what they had been on the 27th of December and 2nd January. The town now afforded secure shelter; and in it there were many places calculated for a Hospital. At the same time our camp was too distant for wounded men to be carried there before having their wounds attended to. Therefore, leaving Dr. Calder, who had now joined, to receive the wounded as we could despatch them, Drs. Bean, Rimington, and myself accompanied the Regiment, intending, had the storm taken place, to perform all necessary operations in the town, and dress all wounds as the wounded were removed from the breach, and for which we took every thing necessary along with us; but of course, from the Fort capitulating, these were not needed.

For several days the men had not much to do, but they were not idle, as we had to furnish working parties to drag guns into the Fort, &c., and to put the Fort in order; and on the 26th a party had to attend the funeral of Lieutenant Anderson, who belonged to the corps, and whose remains had been discovered, and were now to be interred in the centre of the Fort, and in

avenging whose atrocious murder they had so conspicuously contributed even to the fall of the citadel wherein his ashes were to be laid.

The following return shows the number of officers and men killed, disabled, &c. during the siege operations of Mooltan.

Of whom were killed on the spot, or died afterwards.	23
Invalided	29
Returned to their duty	56
Total	108

But their labours and fatigues were not at an end. Shere Sing, though he had sustained a signal defeat in the hard-fought action at Chillianwalla, from which, as well as the strong-post of Russool, he and most of his troops had precipitately retreated, had been able to rally, and again assume a bold and menacing position before the Bengal army, in the upper part of the Jetch Dooab, to reinforce which the whole disposable part of the Mooltan army now hastened. Already we had sent down the river forty-two men and two officers, in steamers, and we were now obliged to disencumber ourselves of the remaining wounded and sick, to the number of sixty-two, by sending them to the General Hospital at Mooltan.

The Bombay column commenced its march on the 2nd February, the late Chief of Mooltan accompanying it, *en route* to Lahore, as a prisoner. On the 4th we crossed the Ravee, some miles above its junction with the Chenaub, by a double bridge of boats at Jellalpoor, into the Rechna Dooab, and continued our course up the left bank of the Chenaub to Ramnuggur. Our route ran in a N. E. direction, through rich alluvial plains, capable of producing all the necessaries and many of the luxuries of life, but poorly cultivated and bare, with scarcely any irrigation, and not a canal to be seen after crossing the Ravee; every place swarming with beggars, and almost the whole population we saw either ready to receive alms, or to help themselves to whatever came in their way.

Supplies were scarce, forage hardly procurable,—in some measure, we understood, from the neighbourhood having been visited by various marauding parties, and Shere Sing's army having

taken this route on leaving Mooltan, in September. The camels, however, fared sumptuously on the tamarisk, which abounded on the banks of the river. At Shorcote, and afterwards as we approached Ramnuggur, the grain crops having made considerable progress, our horses fared better on the green grain. The weather was mild, cool, and bracing, reminding one of an English climate at the end of Spring, and the troops remained very healthy. From Roree to Mooltan, the country continued to be a dead flat, with scarcely a stone to be seen, and not a hill, except a somewhat remarkable rocky one, at the bottom of which lies the Fort of Chinevut. This was almost the only eminence we saw, till, as we approached Ramnuggur, the stupendous snow-capped Himalayas lay in front, at first the mere outline indistinctly seen, but afterwards clearly and beautifully defined. There was little jungle of any kind, and the few trees we saw were the bhair or the babool.

On the 18th we reached Ramnuggur, having completed a distance of 215 miles in seventeen marches, with one halt, the last march extending to 32 miles. At this place was a large reserve force, and depôt of the Bengal troops; and with the view of having as much available sick carriage as possible for the arduous struggle that was anticipated, I should have liked to have left behind several men who had fallen sick since leaving Mooltan, but no arrangements having been made, I was unable to do so. On the 19th we crossed the Chenaub, and after a long, tiresome march, partly through the deep, loose sands on the banks of the river, we, at dark, joined the camp of the Right Hon'ble the Commander in Chief, a number of elephants having very considerately been sent out for our foot-sore men. On the afternoon of the 20th the united armies advanced a few miles towards Goojerat; and soon after day-light on the 21st we turned out to attack Shere Sing's army. We were drawn up in, and advanced through, a wide and extensive plain, every inch of which was covered with young wheat crops, about fifteen or eighteen inches in height; trees and villages being scattered about as far as the eye could reach. The morning was cool and fresh, and the Himalayas, enveloped in white, lay in calm and stern grandeur before us, varying in appearance as we advanced, and the sun rose over them. The

Bombay column was opposed to Shere Sing's right, with the town of Goojerat in our front. The first gun was fired about 8 A. M.; and by 11 A. M. we had approached near enough to distinguish the gaudy and varied garbs of the masses crowding the banks of the nullah in front of their still-standing camp and the town of Goojerat. At that time we little expected that they were to abandon without a struggle that strong place, in which it seemed doubtless the Bombay column would be employed to decide the fate of the day. The moment was an anxious one, for under protection of the different enclosures, &c. in that town they might have committed sad havoc on those sent to expel them from it. But in this we were deceived. They soon began to waver, and the incessant roar of our artillery, and the havoc of grape and round shot, compelled them to give way, at first slowly and unwillingly, but by degrees with all the speed they could muster. A few round shot plunged among us, but the day was won without our losing a man; and we marched through their standing camp, and under the very walls of Goojerat, without a shot from the town, about a mile beyond which the infantry halted and encamped for the night.

We were scarcely astonished when we were ordered off next day in pursuit of the enemy; but when we found that a great part of the Bengal force, which had been almost stationary for months, was to remain behind, it did seem odd that the Bombay army, which since the end of November had been incessantly engaged, either in marching or before the enemy, and during the previous twenty days had marched upwards of 240 miles, should be selected for this duty. But the Bombay troops had turned the tide of war, had sustained no reverse, and were flushed with success, and above all had imbibed none of that extraordinary and to them incomprehensible over-estimate of Seikh prowess and strategy which pervaded the Bengal army, so that the selection was perhaps a judicious one. The men, too, had confidence in themselves and in their officers, and their officers had every confidence in them.

As if in contrast with the loveliness of the preceding day, or as if the elements had been stirred into strife by the thunder-

peals of our artillery, the 22nd turned out the most oppressive day we had yet experienced; and in the evening we were visited by a thick and oppressive dust-storm. By a very zig-zag route we now directed our course upon Jhelum, making the first march nearly due West, towards Dingee, and then turning off to the North, through a rough jungle and stony pass, in a low ridge connecting the Beembur Hills with the Pind Dadun Khan salt range, and which brought us into the rich valley on the banks of the Jhelum. On the 23rd we had heavy rain, with strong gusts of wind, after which the weather again became very fine; and on the 25th we encamped in front of the town of Jhelum, in and round which the enemy lay secure, having, after crossing the river, destroyed the bridge of boats. This somewhat disconcerted us, but at last a ford was discovered some miles higher up, where the river divides itself into five channels, and a few boats having been also secured, we were enabled to cross over, on the 2nd and 3rd of March, unmolested by the enemy, but with the loss of a fine young soldier, who had, unobserved, plunged into the stream to swim across, but having been seized with cramps, brought on, as was supposed, by the cold of the recently-melted snow, he sunk at once. A man who had been long on the sick list with liver complaint also died here.

We now commenced our march in a North-West direction into the high lands, and among the deep and rugged defiles of the Sinde Saugor Dooab. Our first march ran along the gravelly bed of a fine, clear rivulet, which we crossed six or eight times, and on the banks of which we encamped, opposite the extensive and once formidable fortress of Rhotas. On the 6th and 7th we continued our march up the Bukmala Pass, which was merely the bed of the same rivulet, enclosed between almost inaccessible precipices, and which we at last cleared by an abrupt and rough ascent, difficult for guns and baggage cattle. We encamped on the 9th on the banks of another rivulet near Pucka Serai, where Shere Sing came in with overtures from his troops. On the 10th we encamped under the Tope at Manikyala, and next day pitched our camp on the banks of the Hormuck, where Shere Sing surrendered, and most of his troops laid down their arms. On the 14th we marched on Rawul Pindee, where the

remainder made their submission. During this time the weather continued delightfully cool, though sometimes we did not reach our ground till late in the afternoon. Towards Cashmere, to our right as we marched along, lay the sublime Himalayas, range over range covered with the purest snow, and on several days we had heavy rain. The country had now assumed a new appearance : instead of being flat, low, and level, it was divided into a succession of platforms, flanked by yawning chasms, into which we would soon afterwards descend again to ascend through some rugged ravine. These platforms were bare of trees, but tolerably cultivated, and were now covered with crops of bearded wheat, or the oil-plant called Sirsoo, and mustard, which crops seemed to depend entirely on the rains which fall abundantly at this season, as we saw almost no wells, and irrigation in a country with such a broken and irregular surface must be almost impracticable. On the green wheat our horses fed and thrived, and the camels seemed equally to enjoy the oil-plants, which the horses would not touch.

Shere Sing's army had now been dispersed, but the Affghans, under Dost Mahomed, the ruler of Cabool, still lay at Attock, and we resumed our march to drive them across the Indus, and from the Province of Peshawur, our route having a rapid descent from Rawul Pindee to Attock. On the 17th we crossed a range of steep rocky hills, near Janee ke Sung, by a paved causeway (the Marghulla Pass), and encamped on a beautiful rivulet in the Valley of Wah (Hoossein Abdool), and here a man who had been long in hospital breathed his last. Down this well-watered and well-cultivated valley, at this season decked in all the gay hues of advancing Spring, and enriched everywhere by the beautiful pink blossom of the peach, we marched next day, and after passing a tolerably rapid stream, with high, bare, and irregular banks, running to the South-West, we came upon an acclivity overlooking the wide and fertile valley of Chuch, the whole plain verdant with the young crops of wheat, continuing in one unbroken sheet for miles to the right and in front, beyond which a line of dim haze indicated the course of the river Indus. Over the whole plain were clusters of thriving villages, near one of which, called Shumsabad, we encamped late in the

afternoon, after a long, hot, and fatiguing march. On the 19th we continued our march upon Attock, and under the slaty hills on which it is situated we encamped about breakfast-time.

On the 20th we crossed the Indus by the bridge of boats, our route having now a more Westerly direction, and after great detention in the narrow, confined, and irregular Geedur Gullee Pass, and a toilsome march over a sterile plain, we reached our camp a few miles short of Akora, situated on the Cabool River, which afterwards joins the Indus about four hundred yards above Attock. Our next march, along the right bank of this river, brought us to Nooshana, a large and populous town in a country now become fertile and productive, and next day we reached Peshawur, where we halted till the 28th, and then advanced to take up a position near Jumrood, and between the Khyber Pass and Peshawur. We had thus completed a distance of 277 miles from Ramnuggur, in 26 marches, having halted or been detained 12 days, arriving at Jumrood with a sick-list of 41, and having lost by disease, since leaving Kurrachee, one man by fever, on the 4th of December, one on the 3rd of March by hepatitis, and one on the 17th of March by bronchitis, exclusive of George Shawyer, previously mentioned, and Captain Rawlinson, whose death could not be attributed to the campaign.

Return showing the nature of the diseases in Hospital on our arrival at Peshawur.

Strength.	Fever.	Catarrhus.	Dysentery.	Hepatitis.	Rheumatism.	Syphilis.	Other Diseases.	Total.
841	13	..	6	1	..	8	13	41

To one entering the province of Peshawur, as we did from the Eastward, the prospect is by no means prepossessing. Attock itself is hidden from the rich valley behind it by a bend of the hill, on the bare extremity of which it is perched, amid rocks and precipices, which have a grand but no very pleasing effect, and it overlooks Khyrabad and the opposite bank of the Indus, equally bare and sterile, with the pass beyond winding through the

rugged extremity of another range, which, bounding the Valley of Peshawur on the South, here takes a more Northerly direction, to terminate at the river on the Western bank. All, therefore, appears arid and bleak, till the pass is cleared nearer Akora, after which the valley, which is pear-shaped, and very confined to the East, gradually expands, and though for some time not very productive, improves every mile, until, on approaching Peshawur, it presents at this season one extensive sheet of green, broken only by the neat and comfortable villages strewed over it, which, as described by Mr. Elphinstone, in 1809, are still exceedingly numerous. This highly cultivated appearance continues for about seven miles beyond Peshawur, when it suddenly terminates at the bed of a mountain torrent, towards which there is a rapid slope from the foot of the Khybur Mountains; and this intervening space partakes entirely of the character of these bleak hills, being utterly devoid of verdure, so that this nullah forms a clear line of demarcation between the utmost conceivable fertility behind, and a proportionate degree of sterility in front.

The Valley of Peshawur, in length about fifty-two miles and perhaps less than twenty-five in width at the broadest part, and a thousand or eleven hundred feet above the level of the sea, is situated in about 34° North and 72° East, and is bounded on the North by the Cabool River, distant from the capital about eight miles, which divides it from the Euzufzu country; on the South by a range of hills dividing it from Kohaut, a valley of similar fertility; on the West by the Khybur Mountains; and on the East by Attock and the Indus.

The seasons seem to be divided into the hot and cold, the former commencing early in May, and lasting till September, when the cold weather gradually sets in. There seems to be no proper monsoon at Peshawur, as from the beginning of May we had, almost daily, a clear cloudless sky, with only one or two thunder-storms, with rain, in August. As the cold weather advances, however, rains are frequent; and, towards the latter end of it, in sufficient abundance for the crops of that season, which seem to depend almost entirely on the rain. The weather during April, and up to the 6th of May, at Jumrood, was astonish-

ingly cool and pleasant. Rain fell at regular intervals, at times heavily; and we had storms of thunder and lightning which, from the proximity of the Khybur Hills and the reverberation amongst them, were of surpassing grandeur and sublimity, the vivid flashes of lightning illuminating them from top to bottom; whilst, in the roll of the thunder, the mountains seemed to tremble to their very foundations. During May at Peshawur the weather was changeable: at the commencement there was heavy rain, and the atmosphere was pure, cool, and pleasant, but towards the end of the month the heat increased rapidly, with scorching winds and dust. In June the heat gradually became more intense, with hot blasts and thick suffocating clouds of dust. In July the heat was fearfully oppressive, day and night, rest being completely broken and disturbed by it. In the early part of August the burning atmosphere told terribly on the poor fellows in the tents, but after a thunder-storm, and heavy rain, about the middle of the month, a gradual and welcome change became perceptible. In September there were some hot days, but a very decided change had taken place; and after the 20th the weather was cool, pleasant, and bracing. In October the cold weather approached rapidly, and free exposure and exercise at all hours of the day were freely and safely indulged in by all. In November the distant hills were again covered with snow, from which a cool breeze spread over the whole plain; and in December the lower ranges of hills, down almost to their bases also wore a fleecy covering, whilst heavy rain in the day and ice at night were almost of daily occurrence on the plain.

Scale of range of Thermometer during the residence of the 1st Bombay Fusiliers at Peshawur.

Months.	Minimum.	Maximum.	Months.	Minimum.	Maximum.
April	59°	94°	September..... ...	68°	106°
May	61	109	October..... ...	58	91
June	74	114	November..... ...	50	78
July	72	112	December.....	42	65
August	72	110			

N. B.—The Thermometer in December fell to the freezing point before sunrise; in January it fell to 25°, which was the lowest of the year.

Were the province entirely dependent on rain, it would be a barren desert, at least for the greater part of the year, but it is not so; for besides canals from the Cabool River, another stream, which issues from the hills near the Fort of Bara, affords a constant and plentiful supply of water to the upper part of the valley; and so admirably is it distributed, by the most surprising and perfect network of aqueducts, each with its little noisy flour-mill, that every yard of ground is cultivated, and the supply of water is never-failing. The rich cultivation which abounds everywhere in consequence of this plentiful irrigation of a soil more than ordinarily prolific, may be imagined. Almost every village has its stock of the choicest fruit-trees; and round Peshawur large and numerous orchards abound, filled with mulberry, bhair, plum, peach, quince, pomegranate, and fig-trees of a large size; whilst gigantic vines are seen scaling their highest tops, and spreading from one tree to another, with enormous bunches of grapes hanging from every branch. Some of the best Indian fruit-trees, however, are not to be met with. The mango tree is not to be seen, nor the guava, or custard-apple, and even the plantain is scarce. A pretty-looking willow is common along the water-courses, and also the poplar; the neem, peepul, and banyan trees are few, and reach no magnitude; and the milk-bush and prickly pear are not met with. The camel-thorn is abundant at a distance, as is the tamarisk near the river. The ordinary hot-weather crops are bajree, jewarry, and Indian corn, which last is grown in greater abundance than I have elsewhere seen it; sugar-cane is not abundant, and is small; tobacco I did not see; and cotton is grown merely for home consumption, and has a short fibre; but various sorts of pulse, rice, and melons grow in the greatest perfection. Culinary vegetables, such as are met with in the monsoon in India, are also in great abundance, as brinjals, bhendy, cucumbers, tinai, doodya, pumpkins, &c., and are in great perfection. The cold-weather crops are, as I have already said, wheat and barley, with turnips, which reach a large size, and are grown in the open fields, as in Europe. We got a hundred and ten pounds of barley for the Rupee, and on this we fed our horses, and all other supplies were moderately priced, as eggs, fowls, animal food, &c.; and, as might be expected, the

inhabitants are a happy and contented-looking people, robustly made, and very healthy.

The last days of March, the whole of April, and up to the 7th of May, we spent under canvas, in front of the inhospitable Khybur Hills, near Jumrood, where our encampment unfortunately was most uncomfortable. The ground was badly selected, and we were pitched partly on the banks and partly in the bed of the mountain-torrent which divided the Hospital from the rest of the lines, and which, on more than one occasion, nearly swamped the whole of the sick, and completely cut off all access to them, and which actually did swamp and carry away some of the officers' tents pitched in it. The site was in many respects a most ineligible one. The tents were crowded upon one another, and the place soon became filthy in the extreme, and stinking. The slime deposited by each subsiding flood, and dead, putrid, and unburied camels deposited all round, produced the most offensive odours, and a plague of flies, which effectually prevented rest of any kind or anywhere, from sunrise to sunset, or the enjoyment of a single meal; and we were glad indeed to bid the place a final adieu, on the 7th of May. Fortunately, up to this time we had no very hot weather, otherwise, from our proximity to the hills, their completely obstructing the breeze from the West, together with the reflected heat from them, and the arid, slaty, hard bank we were pitched upon, the place would have been unendurable.

On the 7th of May we marched to the rear about seven miles, and pitched our camp on a slightly elevated ridge within a mile of Peshawur, on which temporary pendalls were in the course of erection for us, and which had very judiciously been selected as the site of the future cantonments. Our camp lay to the Westward of Peshawur, facing Jumrood, and commanding a magnificent view of the whole of the Khybur range, the ridge running from the Cabool Gate in a South-West direction. Fears were entertained of its proving unhealthy, from the vast extent of cultivation all round, but the declivities South and North are sufficient to carry off all surface-water; and, if we may judge from the Natives of the place, there need be no fears on the subject, for they cultivate up to the very doors and windows of their

houses, yet a more healthy and robust people are nowhere to be found, I believe. It is not only, from its position in a military point of view, the most eligible spot for a cantonment, but I know none equal to it near Peshawur in a medical point of view; and I have no doubt that when good barracks and houses are built upon it, with a few trees and hedges to temper the climate a little, there will be few stations in India to be compared with it.

In the beginning of June one pendall was finished, and was given up to, and occupied by, the sick. During June, July, and August, as the other pendalls were finished, they were given up to and occupied by the different companies. About the middle of September the Hospital was finished, and the pendall the sick occupied was given up to the men, who up to that time had remained under canvas. From this time till we finally quitted Peshawur all were accommodated in the pendalls, low, confined, and not over comfortable, it is true, but still preferable to tents. In the early part of the season, alarmed at the kind of weather the Natives warned us to expect, some of the officers built small houses; others dug taikhanas, some of which were very comfortable, and proved a great protection from the heat, and a few weathered it out in tents, assisted by punkas, tatties, &c.

Exclusive of the morbific causes in operation at Jumrood, the exposure of men in tents to the high temperature which prevailed without intermission in May, June, July, and August, could not fail to be attended with the greatest danger; and to these may be added other causes of disease, which I shall endeavour, as briefly as possible, to point out.

Simple is the fare of the European soldier on the line of march, more especially in a distant campaign, and steady and regular are his habits. On the march he is necessarily regular in his exercise, and he soon learns to be regular in his diet, in his drink, and his hours of retiring to rest. Well aware is he of the penalty any infringement of the rules of prudence there entails upon him, and carefully does he avoid all temptation. It is only amongst the most reckless, or the young and inexperienced, that a case of drunkenness occurs, and even they, though they may indulge at first, soon discover their mistake, and reserve for a halt their inclination for an extra dram.

They may get a cup of coffee in the morning, or they may not, according to the arrangements made. For breakfast they have tea, milk, bread, generally with butter, and eggs, or a little animal food. For dinner, animal food, and rice *which they seldom at any time use ;* bread, with a sprinkling of vegetables, such as onions, carrots, &c. as they are to be had ; and for supper, at 4 P. M., tea, again a little bread, with any extra they may have been able to procure or save from their other meal, and two drams of arrack, constitute their allowance for the day. When a march comes to a close a change takes place : the soldier has no longer his regular exercise ; he has no occupation, and few amusements, consequently time hangs heavy on his hands ; and it is scarcely to be wondered at that he is then ready to give way to every impulse and to gratify his inclination to the utmost ; and it must be an extraordinary country where the European soldier will not find the opportunity of doing so. At Peshawur a colourless liquor, distilled from raisins, is abundant, and the Natives soon found out the way of supplying it to the men ; at the same time their food became of a more varied description, for in all the necessary articles of diet, and in many luxuries, Peshawur abounds. Animal food was cheap, and wholesome grains of all sorts cheaper than I had ever seen them ; fowls also, and eggs, with country vegetables of many sorts and varieties. As the season advanced we had fruits of the most delicious flavour, at prices which made them accessible to all. On arrival we had mulberries and bhairs ; then a small juicy, delicate, and wholesome plum ; and afterwards figs, peaches, in the greatest abundance, apricots, apples, pears,—quinces, an insipid, harsh, dry, and astringent fruit,—melons, and grapes of the most superior quality, and in astonishing abundance.

By the route followed, from Kurrachee in 24° North to Peshawur in 34°, the Bombay Fusiliers had traversed a distance of more than eleven hundred miles since leaving the South of Scinde, six months before. During that time they had marched from the Southern to the Northern limit of the Punjaub, had crossed the Sutledge, the Ravee, the Chenaub, the five mighty branches of the Jhelum, and the impetuous Indus ; during the whole time they had been under no roof better than that of a

tent ; they had borne a brilliant and prominent part in the memorable siege and capture of Mooltan ; and afterwards by forced marches joined Lord Gough's army in the Jetch Dooab ; had been present in the crowning achievement of the campaign on the battle field of Goojerat ; had joined in the arduous and fatiguing pursuit of the enemy into the Sinde Saugor Dooab, where Shere Sing made his submission ; and they witnessed the famed Sikh legions surrender at discretion, and lay down their arms at their feet. They then formed part of the force sent in pursuit of the Affghans, till they were chased from the Province of Peshawur into their mountain fastnesses.

The eventful and important campaign which in six months had added to the British Empire one of the largest and richest provinces of Asia had closed ; the family of Runjeet Sing had ceased to reign ; the Sikh people no longer existed as an independent nation ; and the country of the Five Rivers was incorporated with the British Indian Empire. These six months had consequently been a period of great mental excitement and bodily activity, labour, and exposure ; and were succeeded by a period of idleness, inactivity, and want of excitement, which almost uniformly exerts an injurious influence on the health of the soldier. Accordingly, as appears from the Returns, and as already stated, though we lost only three men by disease in the preceding six months, we lost in the six months succeeding the 1st April 1849 no less than eighteen men by disease ; we lost two men in each of the three following months, and, as again exemplifying the beneficial effects of mental and bodily activity, regularity of habits, &c., I am happy to say that during our long and tedious march from Peshawur to Poona, in the end of December 1849, January, February, March, and beginning of April 1850, we lost only two men by disease, though we brought every sick man from Peshawur along with us.

The effects on the men, of change from the active, regular, and excited life of a campaign, to the sedentary, inactive life and looser habits of a standing camp, soon became apparent in their diminished relish for their meals, their predisposition to indigestion, jaundice, and in the prevalence of nausea and vomiting after meals, which, during the time we lay at Jumrood, affected

nearly every man and officer of our Regiment, and indeed I believe almost every man of the force. The complaint, for complaint it was, and a very annoying one too, though not dangerous, I admit, I could not account for in a manner satisfactory to myself. The natives, as they always do, attributed it to swallowing flies, and some became converts to this opinion: they no doubt did soil and corrupt every article of diet or whatever else was left for the shortest period exposed; and if anything could give one an idea of the third plague inflicted on the land of Egypt in days of old, it was here realized in perfection. Many attributed the complaint to the presence of antimony in the water, as it is found in the hills from which the streams issue, but none could be detected in it; and I considered that the real cause lay in the new life and habits we had entered upon. The disease was characterized by no peculiar symptoms besides those mentioned. There was nausea, most frequently in the middle of or immediately after a meal, suddenly followed by vomiting, till the whole contents of the stomach were ejected; and the feeling of nausea continued for some time afterwards, but gradually subsided, very probably to return again, however, at the following meal.

In the matter ejected there was seldom anything either bilious or acid, and the bowels were in a natural state, or perhaps rather confined. This state of things might occur once, or might recur frequently, and then the men would apply at the hospital for an emetic or a dose of physic, but seldom to be admitted. From not being able to retain anything on the stomach, and consequently from want of due sustenance, the men felt languid and low-spirited, but no other permanently bad effects resulted from it; and after we moved back towards Peshawur, on the 7th May, there was scarcely a case of it.

Icterus.—Subsequently to this disease, and, as it appeared to me, proceeding from the same causes, cases of jaundice became very frequent, amounting in the nine months we lay at Peshawur to no fewer than 34 admissions against 2 in the corresponding period of the previous year. They were characterized by the usual appearances of yellowness of the skin and eyes, high-colored urine, obstipation, and clay-colored stools, want of appetite, lan-

gour, &c. An emetic was almost uniformly given on admission; cathartics daily, and most frequently mercury was given to ptyalysm. Under this treatment they all did well, though occasionally a considerable degree of debility remained for some time afterwards, which was treated with aperient bitters, alkaline medicines, tonics, and mild nutricient diet.

Bowel Complaints.—With such very general and considerable derangement of the digestive organs as prevailed for some time, it might have been expected that bowel complaints would have been frequent also, but they were not so, as we had only 50 cases of dysentery, and 58 of diarrhœa, during the time we lay at Peshawur, against 83 and 87 for the corresponding period of 1848. A number of the cases admitted in April and May were, however, of a severe nature, which I attributed partly to the unwholesome and filthy locality we were in. Of the 38 cases of dysentery treated in April, May, and June, we lost no fewer than five, which was a large proportion. The treatment consisted of depletion, particularly local depletion, castor oil, opiates, and anodyne enemata, Dover's Powder, mercury, &c., as detailed in my former Reports.

Hepatitis.—The cases of hepatitis were 37 during the period we were at Peshawur, against 45 for the corresponding period of the previous year; of these, 2 cases proved fatal in the acute form, and one in the chronic form, the latter having been for a long time under treatment.

Fever.—Soon after our removal from Jumrood to our new camp, near Peshawur, fever began to prevail among the troops, and more especially in H. M.'s 60th Royal Rifles, placed in a low, damp, and confined locality; but the Bombay Fusiliers escaped up to very near the end of June. During June, however, the admissions for fever stood at 86, against 32 in the preceding month. It was not, however, till July that the difference became very perceptible, but in that month we admitted no fewer than 524 cases of fever. In August the admissions were also numerous, but long before September the disease had ceased, and in that month we admitted only 71. The endemic autumnal intermittent fever now made its appearance, however, and our admissions went up to 204 for October, 149 for Novem-

ber, and 67 for December, making a total in the nine months we were at Peshawur of 1,443 cases of intermittent fever, against 237 for the corresponding period of 1848.

The character of the epidemic fever which prevailed in July and August may be inferred when I mention that out of the 798 cases admitted in these two months not a man died. The symptoms on admission, it is true, were often very urgent, and demanded the most prompt and decided measures for their relief; there was pungent heat of skin; great thirst; parched, red, and dry tongue; quick, full, and strong pulse; racking pains in different parts of the body, and acute head-ache, with flushed countenance; throbbing of the temples, restlessness, nausea, and vomiting of bilious matter, &c.; which symptoms no doubt were in many instances aggravated by the indifferent shelter the men had from the inclemency of the weather in that hot valley. The autumnal fever which afterwards appeared was almost equally mild, as we lost only three men from fever in October, November, and December.

To describe the plan of treatment of a disease having such marked symptoms, seems almost superfluous. Evacuants fully and freely employed, with copious and repeated venesection, cupping, and leeches, (in fact, I never at any former time had occasion to prescribe bleeding either to the same exent or so frequently,) aided by tartar emetic, till all local determination and the chief urgent symptoms were removed, and afterwards quinine, were the means had recourse to.

As usual, relapses were frequent, and gave much trouble, but the symptoms in the succeeding were never so violent as in the first attacks, and the men generally returned to their duty on the fourth or sixth day.

Of diseases of the lungs we had no cases worth mentioning; and the only remaining disease deserving notice was of the brain.

Apoplexy.—During the hot months of July and August we had altogether eight cases of apoplexy. On the 29th of July a healthy young man, of twenty-four years of age, was in the afternoon suddenly seized with apoplexy, and brought to Hospital from his tent. He was insensible, bereft of sensation, unable to

move, to articulate or swallow, convulsed, and agitated. His pulse was full and throbbing, face flushed, eyes red and prominent, temperature of surface high, respiration slow and oppressed, with constant muttering, &c. He was bled, had stimulating enemata, with cold applications to the head, ammonia to the nostrils, &c. ; but he did not for a moment improve, but on the contrary, the pulse gradually became weaker and more frequent, with slow, irregular respirations, &c., and he died in about two hours.

On the 3rd of August we had nearly a similar case in a young man, of twenty-one years of age, and full habit of body. On the 4th, a serjeant, of twenty-seven years of age, who, it afterwards appeared, had complained of pain in the head for some time before, but having had much to do did not apply at the Hospital. On the 13th there was another case, in a man of twenty-five years, who survived twelve hours. On the 14th there were three other cases, one of which proved fatal. On the 23rd another serjeant, of very full habit of body, and a free liver, came in, but he also recovered.

The only man of the above of really intemperate habits was one admitted on the 14th, and who recovered ; he was also the oldest man, being thirty-two years of age. The serjeant admitted on the 23rd was a free liver, without being a drunkard; he and the other serjeant were both twenty-seven years of age. The others were all young men, known rather as temperate men than otherwise ; one was considered a man of very high character, and sober. As far as I could ascertain, insolation, that is exposure to the direct rays of the sun, was in no instance the cause of the attack, as the orders at the time were most stringent against men exposing themselves in the sun ; though in every instance I attributed the attack to the long-continued exposure to a very elevated temperature, as five of the men attacked were at the time living in tents.

The first four cases were brought to Hospital in a perfectly hopeless state; the fifth fatal case I had great hopes of saving ; the insensibility on the first attack was less complete ; and by persevering in pouring the coldest water we could get on the crown of his head for more than an hour, then cupping him in

the nape of the neck, and applying a blister over the scarified surface, giving strongly cathartic enemata, and introducing the catheter to draw off a large quantity of urine, he improved very much; and in the following and next days I endeavoured to affect his mouth with mercury; kept his head as cold as possible with vinegar and water, and gave slightly nourishing diet, &c. with every prospect of success, but on the third evening he had another attack, which suddenly carried him off. The other two men admitted on the same day were treated in a similar manner, and recovered. The serjeant admitted on the 23rd, and who recovered, was freely and copiously bled, and treated with evacuants: he was never completely insensible.

The Bombay Fusiliers, having formed the advanced guard of the Army of India for nine months, and tranquillity reigning throughout our recent vast acquisitions, in the end of December 1849 received orders to return to the Bombay Presidency, and accordingly, on the 30th of that month, we commenced our march from Peshawur.

As the period of our departure from Peshawur approached, and it was known that all our sick were to accompany us, it became necessary to make arrangements for their conveyance, as well as to be prepared for the usual casualties on the road. Our service establishment of doolies had been kept up, so that we were provided with 38 doolies; and as H. M.'s 60th Royal Rifles had been transferred to the Bengal Presidency, I at once applied for a portion of their doolies, and 25 were handed over to us. This gave carriage for 63 men; and as we were also entitled to 7 khajawahs, we had thus conveyance for 77 men. Our sick list scarcely amounted to this number, so that we had at starting a small quantity of spare carriage. This was soon absorbed by men falling out on the line of march, &c., but still, by giving some a lift for part of the march, and then relieving them by others, &c., we were never at a great loss, and when the sick list, instead of increasing began to decrease, we found ourselves with abundance of it.

When we left Peshawur snow lay on the hills, and ice in the mornings was no rarity in the plain; and though there had been heavy rain, the weather for some days had become more settled,

so that the climate was delightful. When we reached Akora, rain again fell heavily; and as the camels could not travel we were there delayed two days. On the 4th of January we recrossed the Indus at Attock, and through the valley of Chuch had fine bracing weather. In the valley of Wah, at the Margulla Pass, and Manakyalla, we again had heavy rain, which delayed us for some days; and when we were able again to make a start of it, we found each new encamping ground so wet that it became necessary at every march to supply the men, as well as the sick, plentifully with straw and chaff, to protect them from the cold, raw ground. As we escaped from the highlands of the Scinde Saugor Dooab the rain interfered less with us; and we had only one other fall, when between the battle-fields of Chillianwalla and Ramnuggur.

Along the rich alluvial plain on the left bank of the Chenaub we had delightful easy marches, but very few halts; and on the 18th of February we again reached Mooltan. How changed from what it was when we first beheld it!—then able to set at defiance for nearly a month one of the best-appointed armies that ever took the field, but now a mass of ruins. We here halted two days, and reached Buckree, near the confluence of the Sutledge and Chenaub, on the 25th.

We had thus a second time traversed our new acquisition from one extremity to the other, to accomplish which we had taken within three days of two months. We had on this occasion probably a better opportunity of judging of its vast extent and value than in our march upwards, a year before, and we could not fail to admire its unsurpassed capabilities. Between the Indus and the Jhelum, it is true, the features of the country are of a description that forbid the expectation of any great or immediate improvement, but even there we marched through the rich and extensive plain of Chuch, the beautiful valley of Wah, and some rich tracts near Rawul Pindee; but when we descended into the vast plains on the banks of the Jhelum, nothing could exceed the fertility of the country. From Jhelum across the Jetch Dooab, *viâ* Ramnuggur, Jhung, and Mooltan, to Bukree, the whole extent is one vast alluvial plain, rivalling in resources even the lower provinces of Bengal or Guzerat. We saw the most

luxuriant crops of wheat and hemp, (the mulberry grows almost wild,) and silk, cotton, indigo, the sugar-cane, and poppy might be cultivated to an unlimited extent. As yet, unfortunately, much of it lies in a state of nature, and utterly neglected; and the inhabitants appear impoverished, ill-clad, and void of energy. But now that the spear may be converted into the ploughshare, and the sword into the pruning-hook,—that strife, turbulence, and war have been succeeded by the blessings, it is to be hoped, of a lasting peace,—that property will be secure, and the inhabitants may calculate on being able to reap where they have sown,—and, it may be expected, that the fostering hand of a liberal government will be extended to develope its resources,—the country of the Five Rivers may within a few years be one of the richest countries on the face of the earth.

On the 26th we embarked on river steamers for Kurrachee, which we reached on the 17th March. On the 22nd and 23rd we embarked on sea-going steamers for Panwell; but anything worse managed than was that embarkation it is difficult to conceive. The Right Wing and sick were marched down to the bunder in the morning, after an early breakfast, and then we found the tide just sufficiently low to prevent our being able to move till it returned. It was full ebb a few hours afterwards, and the whole of the men and sick were thus kept unsheltered upon that bare bunder till the tide returned and the boats were got afloat, at from 3 to 5 P. M., so that we did not reach the steamer till after dark; and the confusion and want of comfort of that night few of the men will ever forget. The place allotted to the sick was actually unable to contain them. They had no places to spread their beds upon, except the wet decks, and many were without kit of any kind; but in the dark, in that strange place, nothing could be done for them till next morning. Had we marched down to the bunder at 4 o'clock in the morning, we would have been on board by 9, and had the whole day to make arrangements in, but by no one taking the trouble to ascertain the state of the tide, the men were put to the greatest discomfort, not only for that night, but for the whole voyage. For the Left Wing things were managed much better.

We reached Panwell on the 26th of March, and Poonah on

the 3rd of April 1850, having thus come a distance of eighteen hundred miles in three months and five days, and having descended from a latitude of 34° to one of 18°, of which 12° were completed within the last month. Gradually, as we came South, the weather became warmer, and towards the end of March, in Lower Scinde and the Concan, the heat began to remind us that the season was sufficiently advanced to make a change of residence desirable from crowded tents into more spacious barracks.

After the volunteers and officers of the Staff joined us at the rendezvous at Roree, we mustered 978. At Jumrood, on the 1st of April 1849, we mustered 841 ; and no recruits joined Head Quarters during the year. From that time to the date of leaving Peshawur we lost 24 men by disease, besides one other man, who was brought dead to Hospital ; one man was shot by his comrade, and the murderer was hanged ; and 12 others were detached ; so that we left Peshawur having on our Returns 802 men. Between Peshawur and Poona, as I have stated, we lost 2 men by disease, one was brought to Hospital dead, and a fourth was drowned in the Indus ; 13 were left sick in Bombay, and 4 were detached ; so that we marched into Poona only 781 men and officers, but they were as healthy, robust, and efficient a body of soldiers as ever returned from a campaign.

Article II.

Medical Topography of Baghdad. By J. M. Hyslop, M. D., Residency Surgeon.

Presented by the Medical Board, June 1851.

Baghdad is situated on the River Tigris, in lat. 33° 19′ 40″, and long. 44° 25′ E., in the centre of a large alluvial plain, intersected by the two rivers Euphrates and Tigris. Its elevation above the level of the sea has not been determined, that I am aware of, but it probably does not much exceed 500 feet. The soil is a rich and deep alluvium, and the country almost perfectly level, thickly dotted over with mounds, the ruins of ancient cities, towns, and canals, attesting the former flourishing condition of this now thinly-populated and poverty-stricken country. Along the banks of the river, in the immediate neighbourhood of the city, there are numerous gardens, yielding a considerable produce of dates, oranges, figs, grapes, limes, peaches, pomegranates, &c., and a languid cultivation of grain is carried on around; but, with the exception of a few cultivated spots in the neighbourhood of towns and villages, the whole country is an arid waste. At Baghdad, the breadth of the Tigris is 871 feet from bank to bank; the depth varies at different seasons from 6 to 25 feet. There are two annual rises of the river, one in the beginning of winter, from rain; the other in spring, caused by the melting of snow on the mountain ranges of Armenia, from which the river has its sources, at an approximate height of 5,050 feet. The winter rise is insignificant and irregular, but that in spring is quite the reverse. The volume of water is observed to increase generally about the end of March, and the increase continues until the middle of April, from which time it falls slowly and gradually until October, when the river is at its

minimum size. The rise varies much in different years, but it is never less than 10 or 12 feet; when it exceeds 18 feet, it overflows the banks, and causes more or less mischief, according to the suddenness of the rise, and the volume of water spread over the country. In 1831 there was an inundation of this description; the water entered the city, and 15,000 people were drowned, or buried in the ruins of their fallen houses; the surrounding country was covered with water; the crops were destroyed; and a famine was the consequence. Plague succeeded, which carried off its thousands; and a besieging army, taking advantage of the helpless condition of the inhabitants, sacked the city, and butchered the plague-stricken natives. From this series of calamities the population was reduced from 150,000 to 20,000. In 1847 the rise of the river was smaller than usual, and there was no inundation. In 1848, too, the embankments were sufficient to confine the increased body of water; but in the two following years the rises were greater than they had been since 1831; the partial and badly-constructed embankments gave way; an inundation was the result; and on both occasions it presented the appearance of one sea from Baghdad to Bussorah. The city was surrounded by the flood; and in too many instances the court-yards and cellars of the houses were filled with water. When the river began to fall, and the floods to subside, the heat of summer, acting on an immense tract of marsh, produced miasma of no ordinary virulence; and in the first of these years fever carried off 11,000 people, in Baghdad and its suburbs. In the following year, too, fever prevailed to a great extent, but did not prove so fatal, having carried off only 2,000 out of a population of 60,000. It is lamentable to think that this great loss of life and property (for the crops were almost entirely destroyed both years) might have been averted by the simple precaution of forming suitable embankments on those points of the river at which the water was likely to overflow the country; but such is the apathy of the Turk, that for some years a large marsh has been allowed to remain on the West side of the town, because the bunding of the canal from which it is fed has never been commenced until too late in the season, and the work has been

so inefficiently done that the first rise of the Euphrates has sufficed to sweep away the paltry heap of mud which had been deemed fit to withstand the force of a strong and rapid current. Last summer the Governor of the Pachalic had a severe attack of remittent fever; and during his convalescence the bad effects of this and other marshes were pointed out to him. This *argumentum ad hominem* seemed to make him anxious to do something towards preventing such another illness; and he has made further attempts to cut off the supply from the Suglarviah Marsh; but I fear that the bund of this season, like its predecessors, will fall before the spring rise of the "Great River"; even if he does succeed, we may anticipate much sickness during the exiccation of the marsh.*

Floods similar to those I have mentioned are alluded to by the earlier writers; and we are told that a great one happened in the time of Mahammed. "In 1733 the Euphrates and Tigris were so overflown that the whole country between them appeared as one large sea; the water flowed up to the glacis, (of Baghdad,) the ditch was full, the city was overthrown, and the foundations of most of the buildings hurt; 300 houses were entirely destroyed."

The climate of Baghdad presents a considerable variety of aspects at the different seasons: we have the torrid summer of the tropics, the cold winter of the North, and the mild and genial spring and autumn of Southern Europe. The thermometer has an extensive range, amounting to 90° during the year. The average temperature may be stated at 76° Fahr. The Table on page 44 has been constructed from observations made in the H. C.'s armed steam-vessel "Nitocris," during the years 1847, 1848, and 1849. The observations were only partly made in Baghdad, and were at times interrupted from accidents having happened to the instruments; the result, however, of the combined observations may be taken as a very near approximation to truth. A Table more in detail will be given in a separate sheet, along with a chart, showing at one glance the variations of temperature throughout the year. From that it will be seen that

* The contemplated plan of cutting off the supply from this marsh has been abandoned.

the prevailing wind is the NW.; E. and W. winds are rare, and occur only during the change from NW. to SE., and from SE. to NW. The Southerly wind has always a depressing effect, producing head-ache, langour, and a general *malaise;* in addition to these, it is often observed to be attended with bowel complaint and vomiting, especially in summer. Persons subject to fever, or suffering from chronic disease, feel this change more severely than those in good health; and in regard both to the wind and moon these peculiar sensations act the parts of barometer and almanack.

The coldest months are December, January, and February; the hottest, June, July, and August.

Months.	Sunrise.	Noon.	3 P. M.	Sunset.	Total Mean.	Mean of daily Minima.	Mean of daily Maxima.	Minimum.	Maximum.	Number of cloudy Days.	Number of rainy Days.	Prevailing Winds.
January....	42.83	55.45	62.46	52.36	53.27	42.78	62.54	31.00	74.00	8.50	4.50	N W & S E
February ..	44.17	57.38	64.04	53.31	54.72	44.09	64.16	34.50	79.00	7.00	2.00	N W & S E
March	50.43	68.62	78.69	65.56	65.82	50.37	78.69	41.50	89.00	7.00	3.50	N W & S E
April.....	58.10	78.96	91.36	74.76	75.79	58.10	91.36	32.00	103.00	0.00	0.00	N N W & N
May.....	72.07	87.46	93.57	85.48	84.64	72.07	93.69	62.50	103.00	4.00	0.50	N W, S, & E S E
June.....	78.03	93.71	99.54	90.91	90.37	77.99	99.68	68.50	101.50	0.50	0.00	N & N N W
July.....	81.56	99.65	105.52	95.65	95.57	81.53	105.53	76.00	112.33	0.50	0.00	N W, N N W, & W
August....	79.51	99.83	105.77	92,36	94.36	79.51	105.78	70.50	110.50	1.00	0.50	N W, N, & S E
September..	70.08	95.33	100.74	88.91	88.76	70.08	100.74	60.00	107.50	1.00	1.00	N W & N
October....	60.63	81.57	92.15	78.16	78.05	60.33	92.25	53.50	100.00	4.00	2.00	N W & S E
November..	51.98	71.34	80.43	67.41	67.79	51.98	80.54	39.50	94.00	8.00	3.00	N W & S E
December..	40.80	55.51	62.14	52.97	52.85	40.70	62.58	30.50	79.00	11.00	5.00	N W & S E
Total Mean.	60.82	70.72	86.36	74.76	75.16	60.79	86.44	50.00	96.15	4.37	1.83	

Thermometrical Observations made in the Hon. Co.'s Steam Vessel "Nitocris," on the River Tigris, in 1847, 1848, 1849.

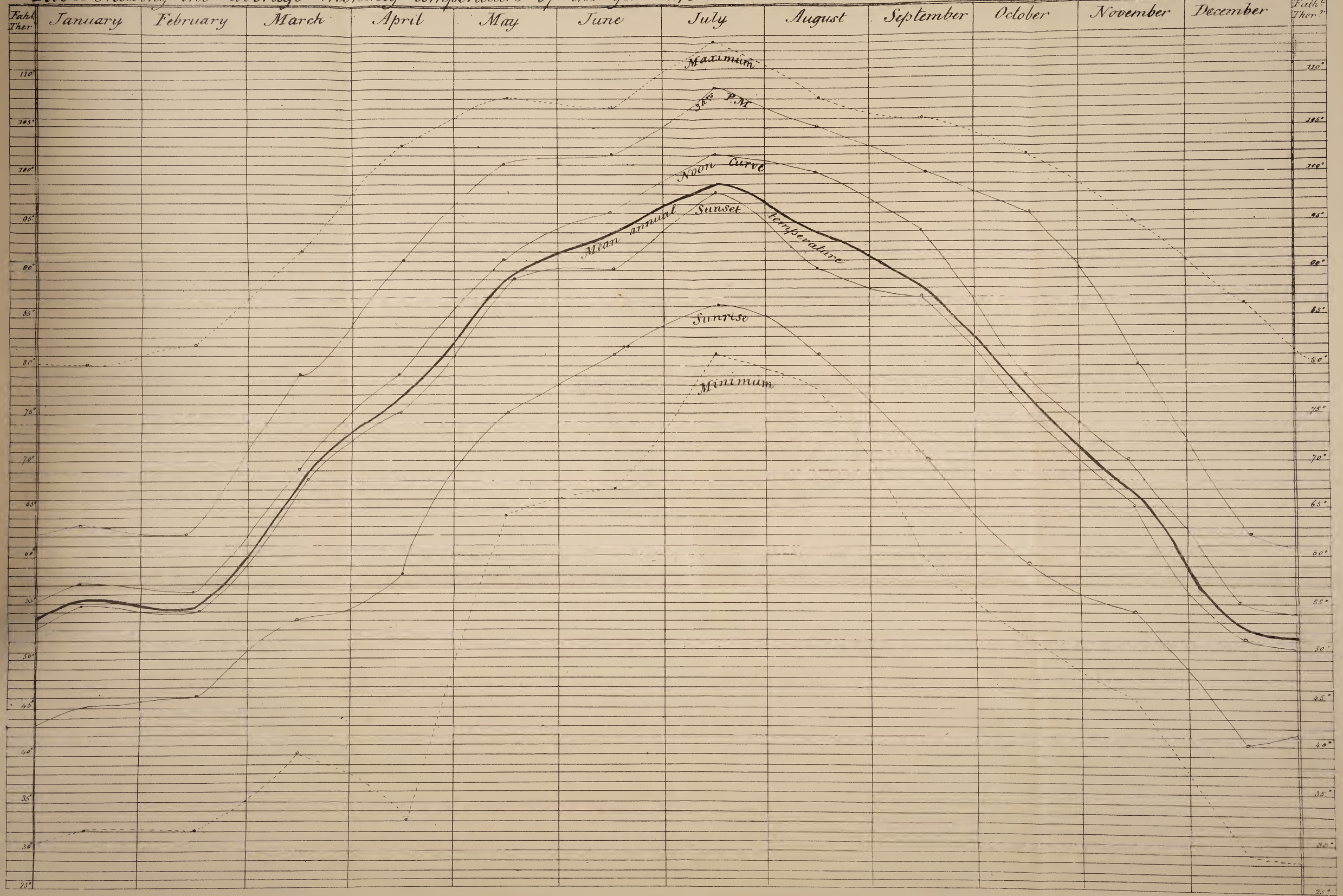
1847.	Mean Temperature at Sunrise.	Mean Temperature at Noon.	Mean Temperature at 3 P. M.	Mean Temperature at Sunset.	Mean of the Month.	Mean of Daily Minima.	Mean of Daily Maxima.	Minimum of the Month.	Maximum of the Month.	Prevailing Winds.	Number of Cloudy Days.	Number of Rainy Days.
July	81°35	100°61	107°41	96°09	96°36	81°25	107°41	73°	117°	N.N.W. & N.W.	..	..
August	78·38	99·25	106·22	95·12	94·74	78·38	106·22	64	112	N.W. & N.N.W.	2	1
September..	70·36	96·26	101·13	91·03	89·69	70·36	101·13	60	109	N.N.W. & N.E.	..	..
October	62·96	83·96	88·19	79·45	78·64	62·96	88·38	57	98	N.N.W. & N.W.	3	3
November..	50·70	72·56	80·63	69·93	68·45	50·70	80·86	35	94	N.W. & N.N.W.	4	2
December ..	42·00	56·48	61·96	54·83	53·81	41·80	62·45	32	73	N.W. & N.	10	5
Total Mean .	66·25	86·36	92·29	82·77	81·91	66·20	92·43	56·14	101·85			

1848.	Mean Temperature at Sunrise.	Mean Temperature at Noon.	Mean Temperature at 3 P. M.	Mean Temperature at Sunset.	Mean of the Month.	Mean of Daily Minima.	Mean of Daily Maxima.	Minimum of the Month.	Maximum of the Month.	Prevailing Winds.	Number of Cloudy Days.	Number of Rainy Days.
January	44°38	57°16	63°00	55°03	54°89	44°38	63°16	31°	80°	N.W. & S.E.	7	5
February ..	45·75	56·34	62·17	53·17	54·35	45·58	62·41	31	82	N.W. & N.N.W.	5	2
March	54·00	69·45	79·48	68·54	67.86	53·87	79·48	39	92	N.W. & S.E.	9	5
April	58·10	78·96	91·36	74·76	75·79	58·10	91·36	32	103	N.W. & N.	..	..
May	74·64	91·19	100·64	88·58	88·76	74·64	100·64	64	108	N.W. & N.	5	1
June	81·10	95·10	102·33	89·66	92·04	81·03	102·43	67	107	N.W. & N.N.W.	..	..
July	87·00	102·54	108·67	97.96	99·04	87·00	108·67	82	114	N.W. & N.N.W.	1	..
August	80·64	100·41	105·32	89·61	93·99	80·64	105·35	77	108	N.N.W. & N.W.	..	..
September..	69·80	94·40	100·36	86·80	87·84	69·80	100·36	60	106	N.W. & N.	2	2
October	57·70	79·19	96·12	76·87	77·47	57·70	96·12	50	102	N.W.	5	1
November..	53·26	70·13	80·23	64·90	67.13	53·26	80·23	44	95	N.W. & S.E.	12	4
December ..	39·61	54·54	62·32	51·12	51·89	39·61	62·32	29	86	N.W. & S.W.	12	5
Total Mean	62·16	79·11	87·66	74·75	75.92	62·13	87·71	50.50	98·58			

1849.	Mean Temperature at Sunrise.	Mean Temperature at Noon.	Mean Temperature at 3 P. M.	Mean Temperature at Sunset.	Mean of the Month.	Mean of Daily Minima.	Mean of Daily Maxima.	Minimum of the Month.	Maximum of the Month.	Prevailing Winds.	Number of Cloudy Days.	Number of Rainy Days.
January	41°29	53°74	61°93	49°70	51°66	41°19	61°93	31	68	N.W. & S.W.	10	4
February ..	42·60	58·42	65·92	53·46	55·10	42·60	65·92	38	76	N.W. & S.W.	9	2
March ...	46·87	67·80	77·90	62·58	63·78	46·87	77·90	44	86	N.W.	5	2
April												
May	69·51	83·74	86·51	82·38	80·53	69·51	86·74	61	98	N.W.	3	..
June	74·96	92·33	96·76	90·76	88·70	74.96	96·93	70	106	N.W.	1	..
July	76·35	95·51	100·48	92·90	91·31	76·35	100·51	73	106	N.W.	..	..
Total Mean .	58·59	75·25	81·58	71·96	71·84	58·58	81·65	52·83	90·00			

Mean Temperature of the Year ending 30th June 1848....76°28
" " " 31st Dec. 1848....75·92 } Total Mean Temperature, 75·85
" " " 31st Mar. 1849....75·37

Table shewing the average monthly temperature of the year 1848 observed in the H.C. Ad Steam.r Nitocris on the River Tigris.



In December and January ice is frequently to be seen, and frost is still more common. March and April are the two most pleasant months in the year; the gardens are then in full foliage, and the atmosphere is delightfully loaded with the perfume of the orange blossom, which is occasionally wafted on the breeze to a considerable distance from town. In August and September we have occasional hot winds from the NE., during which the air is generally obscured with dust, which is so fine and subtile, as to penetrate even into the works of a watch when carried in the pocket. I have seen the thermometer stand at 117° at 10 o'clock at night in one of these winds, but I have never seen nor heard of it proving fatal, except in one instance, in the summer of 1847, in which forty people, working at a canal in the neighbourhood of this city, were struck down in one day, and many of them died. But this might easily be accounted for, without supposing anything poisonous in the wind, as the name Saum implies: the heat in 1847 was intense, and the mere exposure was enough to produce the consequences. I do not deny, although I am inclined to doubt, the existence of the pestilential vapour in the arid deserts of Syria; but I do deny its existence in the neighbourhood of Baghdad. Many strange stories have been told, and much that is improbable has been written of this hot East wind; as an example, we transcribe the following extract from a quaint history of travels, in 1758, by Mr. Ives, a surgeon in H. M.'s Navy at that time. After describing the precautions adopted by travellers to escape the "sudden death" produced by this "fatal blast," called Samiel, he continues (page 275):—

"And when it is over, they get up, and look round them for their companions; and if they see any one lying motionless, they take hold of an arm or leg, and pull and jerk it with some force; and if the limb thus agitated separates from the body, it is a certain sign that the wind has had its full effect; but if on the contrary the arm or leg does not come away, it is a sure sign there is life remaining, although to every outward appearance the person is dead; and in that case they immediately cover him or them with cloths, and administer some warm diluting liquor to cause a perspiration, which is certainly but slowly brought about.

" I have not been able to learn whether the dead bodies are scorched, or dissolved into a kind of gelatinous substance, but from the stories I have heard there has been frequent reason to believe the latter; and in that case I should attribute such fatal effects rather to a noxious vapour than to an absolute and excessive heat."

I have not made sufficient observations with the barometer to deduce anything from them, except that its variation is slight, very seldom exceeding half an inch, and that it always falls during a Southerly wind.

The city of Baghdad is situated partly on the right and partly on the left bank of the Tigris; that portion on the East or left bank is longest, and is connected to the other by a bridge of thirty-seven boats. Both portions were formerly enclosed by a strong wall and ditch, but repeated inundations have completely destroyed those on the West side; and the wall on the East is rapidly falling into ruins. The walls enclose an area of about 2,550 acres, but not more than two-thirds of this is occupied by houses; there are many gardens within the town, and there is a large vacant space on the NE. side, covered by ruins and pools of stagnant and putrid water. The streets are narrow and confined; the houses generally small and badly ventilated; and into many of the covered bazaars neither sunshine nor wind ever penetrate. Almost every house has a summer apartment, called a *sirdaub*, to which the inhabitants retire during the great heat of the day, spending the evenings and nights on the roofs, and the mornings in the upper rooms. The *sirdaub* is a cellar, or sunk room, with an arched roof, and paved with bricks, from which the sun and heated air are carefully excluded; it generally has one or two ventilators, somewhat like chimneys, with a contrivance at the top, built in the form of the mouth of a windsail, to catch the Northerly breeze. These places are dark, and, in the beginning of summer, damp, and a harbour for musquitoes; but there is little difficulty in choosing between a room in which the thermometer stands at 106° or 110°, and the *sirdaub*, in which the temperature is not more than 80°.

Those who have convenience, and can afford it, build what are called *chartaks*, for summer use, in which, if the situation is good, they can reduce the temperature to 70°. The *chartak*

is an apartment with a thick roof, and walls formed of tatties; the roof is composed of mats, brushwood, and a thick coating of mud; the tatties are very simple in their construction, being made of a light frame-work of date wood, the interstices of which are filled up with camel-thorn. These are kept constantly wet, and the breeze blowing through causes a strong evaporation, which produces a considerable degree of cold within. The change, however, from the heat without to the cold atmosphere within, and *vice versâ*, is rather trying, and occasionally brings on rheumatism and catarrh.

A census of the population was taken in 1847, at which time it amounted to 75,000; at present the Government estimates it at 60,000, but I have reason to believe that it falls considerably short of that number. Ives tells us that in 1758 the population was 450,000, but even allowing for a considerable exaggeration, we see what a dreadful falling off there is. Within the last four years a decrease has taken place to the extent of at least 10,000, and doubtless it will continue to decrease so long as the sanitary and political conditions of the country are allowed to remain in their present defective state.

The physical constitution of the Turk is good, but that of the Arab is better; the latter, breathing the pure air, and living on the simple diet of the desert, is but little subject to disease. The natives of the city, by living in over-crowded and filthy houses, breathing impure air, and subjected to the malaria of surrounding marshes, have become deteriorated in physical strength, and are more liable to the influence of epidemic disease. The habit, which is here universal among all classes, of spending an hour or two in a hot bath once a week, must be deleterious; it has a relaxing effect, during which the constitution is more susceptible to any atmospheric influence.* This is so well known, that during the prevalence of cholera many people abstain from the bath on this account. The habit of smoking opium, which used to be so prevalent among the Turks, is by no means common here;

* Mr. Rick, a former Resident here, whose name is still revered by the inhabitants, was at Shiraz during a severe epidemic of cholera, and, contrary to the entreaties of his friends, went to the bath; an hour or two after leaving it he was seized with the disease, which proved fatal.

I have met with very few cases in which the use of this drug was indulged in, and none in which it was smoked. The use of tobacco, however, is general among all classes, male and female; every body smokes, and at all times,—at church and market, in the sick-room and the banqueting-house, in the miserable hovels of the poor and in the Governor's palace, every one smokes. No visit is made, no business is transacted, without pipes and coffee. During the Mahommedan feast of the Ramazan, when the evening gun announces to the thirsty devotees that the sun has set, and they may drink without sin, the first thing they do after their ablutions and devotions is to smoke a pipe. Those who are inveterate against the use of tobacco, and decry it as destructive of morals and injurious to health, would be astonished to find no bad effects from its use, even when carried to such an extent as it is here; I have never been able to trace a single symptom of disease to smoking, nor have I ever had occasion to recommend its discontinuance. It is said that the use of tobacco tends to impair the virile power; we *may* in this way account for the great amount of impotence which is to be found amongst the males of this city, and for the very frequent demands which are made upon us for aphrodisiac medicines. The water used by the inhabitants is from the river; it is uncommonly pure and good, the quantity of saline matter being scarcely appreciable; to get rid of the earthy matter with which it is often mixed, it is filtered through large earthen jars, and is afterwards exposed to the breeze, in porous goglets, by which means it is kept constantly cool and refreshing. Very little spirituous liquor is consumed in Baghdad; some few Mahommedans disregard their religion in this respect, but the habit is almost entirely confined to the Christian population, many of whom indulge in a spirit distilled from the date, and flavoured with anise.

The food of the higher classes is much the same as that used in European countries, with the exception of the great quantity of oil made use of in their cookery; they have abundance of beef, mutton, fowls, game, and vegetables; the diet of the lower classes is more restricted, consisting generally of dates and coarse bread, and, on rare occasions, rice, with a little camel's flesh.

Fish is little used as an article of food, although an abundant supply may be had from the river; with the exception of a species of mullet, however, the fish of the Tigris is coarse, and not very inviting. One peculiarity in the feeding of the natives is the enormous quantity of pickles which they consume: a Turk will eat as much pickles before dinner as a European would do in three months. Fruit of all descriptions is much indulged in, especially the more common sorts, as oranges and water-melons; of the latter the consumption is very great, and it is reckoned a good article of diet in fever, but with this my experience entirely disagrees, as I have very frequently traced relapses to indulgence in this fruit; I am now in the habit of forbidding the use of fruit *in toto* during sickness, and discountenance melons at all times.

As I have before remarked, the sanitary condition of Baghdad is by no means good, and it is very capable of improvement. The chief cause of disease seems the malaria, to which the city has been occasionally subject for many years, and constantly for the last four. Almost every Spring, marshes of greater or less extent are formed to the North of the city, by the overflowing of the river; the ditch round the city wall is filled with water, and generates malaria and noxious vapours during the whole summer; besides this there are smaller pools of stagnant water in the ruinous parts of the city, and a large marsh on the right bank of the river, which has now been permanent since 1846. When a favourable condition of the atmosphere exists for the rise and spread of the epidemic disease, Baghdad does not escape; at one time it is attacked by plague, at another by cholera, at others by fevers of different descriptions,—typhoid, petechial, purple, intermittent, remittent, or simple continued.

"Aër quoque ipse, qui purus sacram vitæ flammam alit, impurus factus, eandem vel statim extinguere potest, vel multis vaporibus onustus, aut nocivis quibusdam effluviis corruptus, ingentem morborum cohortem inducere."

Baghdad has had occasional visits of plague from time immemorial, and there is a tradition among the inhabitants that it recurs every thirty years. During 1831 and 1832 it committed great havoc in the city. It subsided in the end of 1832, and again broke out in 1834, when it carried off between 2,000 and 3,000 people,—a great mortality, considering that from 14,000 to 16,000

Mahommedans, and about 4,000 Jews, had fled to the desert at the commencement of the epidemic. At this time quarantine was strictly performed by the Christians, but, so far as I can learn, without benefit. When the disease occurred in any of the secluded houses, which it frequently did, it was attributed to contagion brought in from without by cats or rats, or some such means, the idea never being dreamed of that the disease might be spread through the agency of a poisoned atmosphere. Of late years a regular quarantine has been established along the frontiers of Turkish Arabia, but since its establishment there has been no epidemic in these countries except fever, and we have no means of judging how far it might avail in preventing the spread of disease.

Since 1834 the city has not been visited by plague, but other equally fatal scourges have done the work of destruction. In the hot season of 1834 "Baghdad suffered very much from intermittents, a circumstance never known before, but easily accounted for by the vast number of marshes left all round by the late overflow of the Tigris." In the autumn of 1836 the mortality in Baghdad from bilious remittent fever exceeded sixty deaths a day; "the weather was hot, and more oppressive than it had been for three years."

From that time until 1840 common intermittent fever was prevalent every autumn, but in that year the atmosphere was more close and sultry than usual, and there was a proportional increase of sickness. "Fevers of every description prevailed; in the cool and airy quarters of the city the intermittent and remittent were the prevalent types; in the crowded and filthy parts, and those in the vicinity of stagnant waters, the common form was bilious fever, with petechiæ and cerebral derangement, resembling typhus, and nearly as fatal."

In the autumn of 1843 "a new epidemic appeared, resembling in many points the worst form of influenza. It came on with rigors and great difficulty of breathing; these symptoms were followed by very strong fever, extremely foul tongue, and, in many cases, delirium; and when the last did not exist, the patient was constantly harassed by fears of approaching dissolution. This ended generally on the third day, in an efflorescence of the

deepest scarlet all over the body, in diarrhœa, or in profuse perspiration. The mortality was not great, but relapses were frequent, and the recoveries tedious. Many people suffered for a few weeks after the attack from rheumatic pains or from paralysis of one or more of the extremities. At least eight-tenths of the population were attacked. It extended all over the province, and had never been known in these countries before."

In September 1846 cholera appeared for the first time,* in a most virulent form, and carried off 5,000 people. At the outbreak of the epidemic it was unattended with spasms or pain; sudden fainting and an immediate deadly coldness being the first warning. In September 1847 it again made its appearance, but in a much milder form, and the mortality did not exceed 2,500. In the beginning of winter of the same year influenza passed over the country, in an epidemic form, from Bussorah to the Syrian Coast, and from that to Europe, following nearly in the track of its predecessor, cholera; in the winter of 1847-48 fever, diarrhœa, and dysentery prevailed, and there was a good deal of small pox, which, however, did not spread.

In the summer of 1848 there was a tendency to low fevers, with gastric complications; this continued until the cold season set in, and was succeeded by influenza.

In the spring of 1849, fever, diarrhœa, and dysentery were prevalent; and there was considerable mortality from the two latter. In March and April the river rose, and overflowed its banks; and fever of a deadly form immediately set in. In the middle of June the deaths averaged 150 a day, but the severity of the epidemic declined from that date. The mortality continued steady, however, until winter; and the deaths in Baghdad and the neighbouring town, Kayman, during the months of June, July, August, and September, were computed at 11,000.

In the summer and autumn of 1850 fever again prevailed to as great an extent as in the former year, but did not prove so fatal; it continued until the middle of December, since which time the city has been free from epidemics; the winter was

* Cholera has been known in Baghdad on two former occasions, but it was so mild as to excite little alarm, and the mortality was not great.

unusually dry and cold, and the public health was better than it had been for years.

The fever of 1849 assumed all types and degrees of severity, from mere heat of skin and slight head-ache to typhoid remittent. At first the continued remittent and quotidian intermittent were most common, but when the severity of the epidemic had passed, the tertian intermittent was the most prevalent form. During the whole of the summer months the fever was attended with an extraordinary irritability of stomach; in many cases the attack was ushered in with vomiting of bilious matter; and the retching continued until the supervention of the hot stage; and as the fever declined the irritability of stomach wore off. Intense head-ache was another invariable symptom; the seat of pain was generally the temples, but sometimes also the occiput. For the relief of this symptom cupping and the application of leeches were useful, but from the typhoid tendency of the disease blood had to be sparingly and cautiously abstracted; indeed, in many cases it was found necessary to support the strength with wine. Cases which proved fatal generally terminated in coma and other symptoms of serous effusion on the brain. The treatment best suited for these cases consisted in the application of blisters to the neck or back of the head, and sinapisms to the legs. In the beginning of the epidemic there was no cold stage, but as it progressed the cold stage gradually became more marked, until at last the ague was the worst part of the fever. The following is a well-marked case of the fever, with ague and irritability of stomach, as it existed after the burst of the epidemic:—

A. H., European, 14th July 1849.—Had an attack of fever about ten days ago, which was slight, but attended with great irritability of stomach. For some days he has had head-ache, loss of appetite, and costive bowels, for the relief of which he had Extract. Colocynth Co. gr v last night; is now in the cold stage of fever, ague severe, much vomiting of bilious matter, head-ache, faintness, and general uneasiness.

St. hab. Ammoniæ Sesquicarb ℈i.

Acid Citric gr xxv, in forma haust. effer.

Vespere.—The cold stage continued for an hour and a half; hot stage was short; the stomach settled after he had vomited a great quantity of bile.

H. S. hab. Calomel gr v, Quinæ Disulph grs. iij.

Extract. Hyoscyam. gr ii m., ft. pil. ii.

15th.—Slept well, and feels comfortable; is free from fever; tongue foul.

St. sum. haust. Seidlitz.

Hab. 2da q. q. hora Quin. Disulph gr iij.

16th.—Continues free from fever, and has no complaint.

Cont. Quin. Disulph.

Vespere.—Bowels slow.

H. S. hab. Aloes gr v, Extract. Colocynth co. gr. v m. Cras mane haust. Seidlitz.

17th.—Bowels have been freely moved, stools bilious.

Cont. Quin. Disulph.

18th.—Is well; Quinine to be continued three times a day, until after new-moon (the 20th).

11th August.—Since last attack of fever he has never regained strength nor appetite; bowels habitually costive; this morning was troubled with short teasing cough, severe head-ache, vomiting, and retching; he is now in the cold stage of fever.

Applic. Temporibus Hirudines xii.

℞ Calomel gr v, Extract. Opii gr i m., st. sum.

P. M. Sum. Pulv. Jalap. co. ʒi.

12th.—To-day has no complaint, except slight cough, and tickling in the throat.

℞ Infus. Chirett. lb. iss, Sulph. Magnes. ʒii solv. sum. ʒ iss meridie.

13th.—To-day had fever, as on the 11th; cold stage short; had much vomiting of bilious matter; complains of pain at the top of the sternum, which catches his breathing; respiratory sounds natural, except a little roughness in superior part of chest.

14th.—Fever left him yesterday at 2 P. M., since which he has been taking quinine every third hour; bowels open; no head-ache.

15th.—No fever; bowels not moved to-day.

Cont. Quin. Disulph. quater in die sum. st. Mist. Infus. Chirett. ʒ iss.

16th—Continues well, but bowels have not been moved.

St. sum. Mist. Chirett. ʒ iij. Cont. Quina ter in die.

17th.—Bowels freely opened yesterday.

Cont. Quina.

19th.—Continues well; bowels open.

Omit Quina.

Sum. bis. in die Mist. Chirett. ʒ iss.

20th.—Dismissed well.

I had frequent occasion to remark the large quantity of bile which seemed to be secreted during the fever of that year; perhaps if the atmospheric poison had been more concentrated or virulent, the disease might have appeared in the form of yellow fever. The fever of 1850 differed considerably from that of the preceding year: there was not the same intensity of the disease, but it was much more obstinate. There was irritability of stomach and bilious vomiting, but to a less extent; the different stages of the fever were well marked; and there were perfect intermissions in the large proportion of cases. In 1849, when quinine could be given in sufficient quantity during the remission

or intermission, it never failed to check the disease; but in 1850, although the intermissions were complete, and large quantities of quinine given, in many cases it failed to prevent the recurrence of the disease at the next change of moon. In some of these cases arsenic was beneficial, but in others medicine seemed to be of no use, and the fever continued to recur at irregular intervals, until the cold weather had set in. In many of these protracted cases the disease proved fatal, especially among old people and children. The least exposure to the sun, a costive state of the bowels, or any irregularity of diet causing disorder of the stomach, was sufficient to produce a relapse. In a few of the protracted cases there was enlargement of the spleen, sometimes with and sometimes without pain. This generally disappeared soon after the assertion of the fever, but a few cases required perseverance in the use of quinine and sulphuric acid, or, what appears to be better, some preparation of iron, either the tincture sesquichloridi or the sulphate.

During the last two years the Mahommedan population has suffered to a much greater extent than the Christian; and I can assign no cause for this difference, unless it be that medical treatment was more had recourse to among the latter than the former.

Of the eruptive fevers, I have only met with two cases of small pox, and a few cases of varicella among children. The practice of vaccination has been thoroughly established in Baghdad for many years, and small pox never spreads to any extent. One of the cases which I saw was in the person of a stout young European, who was treated according to the old system. When I saw the unfortunate patient he was lying in a small room, from which every breath of air was most carefully excluded; every window and crevice was accurately closed; and, as an extra precaution, large felt curtains were hung over the door and windows. In the centre of the room was a large brazier of burning charcoal; and the patient was nearly suffocated under the load of bed-clothes with which he was covered. To add to the miseries of the poor man, he was forbid to cool his parched tongue with a drop of water, and stimulating medicines were given him to drive out the eruption. The eruption was

confluent, and the case a bad one; and it is not to be wondered at that he did not long survive the treatment to which he was subjected.

Next to fevers the disease most commonly met with is rheumatism, which is to be expected, considering the great and sudden variations of temperature to be met with in the beginning of winter and spring. The acute form of the disease is rare; it is more frequently seen in a chronic form, attacking the loins and large joints. If there is any feverishness in these cases, the vinum colchici seems to be most effectual, but in old and debilitated constitutions I have found Dover's Powder with quinine the best remedy; and in obstinate and protracted cases the hydriodate of potash is invaluable; in all cases, however, I have premised a good clearing out of the alimentary canal with calomel and colocynth or jalap. Many slight cases of lumbago yield to that alone; in others cupping and blistering, followed by stimulant liniments, are required. Blisters seldom fail to relieve, if not to remove, the most obstinate.

Ophthalmia seems to be endemic in these countries, and is probably caused by the great glare from the sun in summer, and the fine dust with which the air is frequently loaded in autumn; sudden variations of temperature and exposure to dews may also be reckoned amongst the exciting causes. The most common form of the disease is simple conjunctivitis, giving rise to nebulæ and opacities of the cornea. Among the Christian children in town strumous ophthalmia is common. The Arabs have learned the value of a sulphate of zinc lotion for inflammation of the eyes; and one of their most frequent requests is for a little of the "eye medicine."

Diarrhœa is always a prevalent complaint in summer and autumn, but it is mild and tractable, unless caused by organic disease, of which I have met with few instances. Europeans invariably suffer from this complaint for a week or two after their arrival here, but in general it is unattended with pain, and is easily checked by the most simple remedies; but in the first year of their residence here they are liable to a recurrence of the diarrhœa during Southerly winds.

Dysentery is not a common disease in Baghdad, but it is oc-

casionally met with. I subjoin the history and treatment of a case in a European :—

Charles Randguist ; 16th October 1849.—For some time has been complaining of occasional diarrhœa, which has been restrained by the Pulv. Cret. co. cum Opio. Two days ago he had Ol. Ricini et Ta. Opii. Diarrhœa has now returned with increased violence, and attended with pain round the umbilicus, of a twisting, griping character. Tongue clean ; no appetite.

℞ Calomel gr iij, Ext. Opii gr ¼, Pulv. Ipecacuan gr ii, m. ft., pil. i. 4ta quâque horâ sumend.

17th.—Pain continues as yesterday ; has frequent calls to stool, attended with griping and straining, but passes little ; tongue clean ; slept none last night.

℞ Ol. Ricini ʒ vj, Tinct. Opii gtt xv, mucilag. ʒ ii m. ft. Mist. statim sumend.

18th.—Was very much purged by the medicine ; in other respects no change.

Repet. Pilul.

19th.—Pain rather increased ; purging frequent ; tongue clean ; pulse soft, not quick ; face pale.

℞ Calomel. gr iij. Ext. Opii gr ss, Pulv. Ipecacuan. gr iij, m. ft. pil., 4ta quâque horâ sumend.

20th, *Mane.*—Is worse to-day ; pain comes in frequent paroxysms, and is almost unbearable ; pressure about the umbilicus gives pain ; frequent calls to stool, but he passes little. Tongue brown in centre, clean at edges ; no thirst nor vomiting ; pulse rather quick, but soft ; gums swollen and painful.

App. Abdom. Hirudines xxiv et postea fotus. St. sumend. Pulv. Cretæ co. cum Opio ʒi, et hab. Suppositorium Opii.

Vespere.—Leeches bled well, and he says the pain is easier. Has only been three times purged to-day.

℞ Pulv. Cretæ co. cum Opio ʒ ss, Calomel gr iij, m. h. s. sumend.

Repet. Suppositorium.

21st, *Mane.*—Feels better ; pain does not come so frequently in paroxysms, and is not so severe ; pressure does not give so much pain ; pulse quick and soft ; tongue clean ; mouth sore ; breath has mercurial fetor ; slept pretty well last night.

App. Abdomen. Hirudines xxxii et postea fotus.

℞ Extract. Hyoscyami, Extr. Gentian. Pulv. Ipecac. aa. gr iij, m. ft. pil. ii. ter in die sumend.

21st, *Vespere.*—Pain easier.

Cont. Pil.

22nd, *Mane.*—Is much better ; pain seldom comes now in paroxysms, and when it does, is very slight ; pressure gives little uneasiness ; pulse slow and soft ; tongue brown in centre, clean at edges ; some appetite, but he vomited after breakfast ; mouth sore ; complains of debility.

℞ Ext. Hyoscyami, Ext. Gentian, Pulv. Ipecac. aa. gr iij.

Pil. Hydrarg. gr i m. ft. Pil. ii ter in die sumend.

App. Abdomen. fotus.

Vesp.—Has been three times purged, without pain.

Cont. Pil.

H. s. hab. Pulv. Cretæ co. cum opio ʒ ss.

23rd.—Slept well; was once purged during the night, and once this morning; no pain; tongue brown; mouth better.

Hab. Pulv. Cretæ co. cum opio 3i, si opus sit.

Cont. Pil.

24th.—Has only been twice purged; is almost free from pain; complains only of weakness; appetite good; tongue clean. Cont. Pil.

H. s. hab. Pulv. Doveri gr viij. Hyd. cum Creta gr iv.

25th.—Bowels are now regular, and he has no complaint except debility.

Omit. Med.

26th.—Has been frequently purged, with much griping pain; complains also of very severe pain in lumbar region; head-ache.

℞ Pulv. Doveri, Hyd. cum Creta aa. gr iv m. ft. Pulv. ter in die sumend.

Linimentum Saponis co. pro lumbis.

27th.—Has not had so much purging nor pain in abdomen, but pain in loins continues; tongue cleaner; no appetite.

Hab. quater in die ℞ Pulv. Ipecac. gr vi, Ext. Gentian. gr iv, Ext. Hyoscyam. gr iij, Pil. Hydrarg. gr ii m. ft. Pil. iij.

28th.—Has been three times purged; pain gone from abdomen, but continues in the back; feels better.

Cont. Pil.

29th.—No purging nor pain, except in loins and knees

Hab. quater in die ℞ Pulv. Ipecac. gr vi, Ext. Gentian. gr iv, Ext. Hyoscyam. gr iij, Pil. Hydrarg. gr ii m. ft. Pil. iij, i ter die.

30th.—Pains gone from the back and knees; no complaint.

Cont. Med.

31st.—No complaint; appetite good.

Omit. Med.

1st November.—Continues free from complaint; bowels regular.

2nd.—Had a return of pain last night, but was only once purged.

Pulv. Jalap co. 3 ss. statim sumend.

3rd.—Is well, and free from complaint.

5th.—Continues well; care in diet enjoined.

Dismissed well.

8th Nov.—Has been five or six times purged, with pain, since yesterday morning; stools slimy and frothy; complains of pain and weakness in his limbs and joints; tongue clean.

Hab. quater in die, Pil. Dysenteric ii.

10th.—Purging and abdominal pain gone; complains of rheumatic pains in large joints.

Hab. ter in die Sulph. Quinæ gr iij, Pulv. Doveri gr iv m.

11th.—Considerably better; bowels regular.

Cont. Pulv.

13th.—Is well. Dismissed.

Catarrhs are common in the winter months, but acute inflammatory diseases of the chest are seldom met with; neither are diseases of the heart at all common. The same may be said of

liver complaints: I have only known one case prove fatal, and that was in a debauched Persian, who died from hepatic abscess.

It is rather remarkable that organic or functional disease of the stomach is almost unknown; a little temporary indigestion may occasionally be met with, but nothing deserving the name of dyspepsia.

No case of disease of the brain has come under my notice, except one, which presented the symptoms of softening of that organ. I have not seen nor heard of a single idiot or lunatic in Baghdad. Congenital malformations are extremely rare.

I have only seen five cases of dropsy; two of them were acute, resisted the most active treatment, and died in six or eight days. The others were chronic, and two of them were dependent on a diseased state of the liver One of these, not finding immediate benefit from my treatment, applied to a native Hakeem, who directed his attention in the first place to the great infiltration of serum in the cellular substance of the penis and scrotum. The prepuce was so distended with fluid that it covered the mouth of the urethra, and the patient had difficulty in passing water. To relieve this difficulty, the Hakeem made an incision with a razor into the urethra behind the glans, cutting through a considerable portion of one of the corpora cavernosa. Another case, illustrative of the satisfaction of treating natives of this country, occurred in a female, whose abdomen was very much enlarged from ascites. I gave her a diuretic mixture, and directed her to take a small cup-full three times a day. In the afternoon a relative came to me in great distress, stating that the patient was very ill, that she had taken the whole (quart) bottle of medicine at once, and that it had done her no good.

Venereal affections are certainly not common; compared with European cities the amount of public prostitution is very small, and the frequent baths aud ablutions which the Mahommedan religion enjoins have doubtless a great effect in preventing the spread of this class of diseases.

Hœmorrhoids are very common, and I have seen several cases of fistula in ano; the sedentary and indolent habits of the Turks, along with a costive state of the bowels, to which they are very

subject, is sufficient to account for the frequency of these complaints.

I have met with few varieties of skin diseases in my experience of Baghdad. Some few cases of impetigo, ecthyma, psoriasis, and porrigo are all that I can recal to mind as having seen; of these the different forms of psoriasis and porrigo were most common. Sulphuric acid is a favourite medicine in town for all cutaneous affections, and failing that as a remedy, the patient, if he has the means, then proceeds to Moossul, to bathe in and drink of the waters of some thermal sulphureous springs in the neighbourhood of that place.

The inhabitants of a city built on a deep alluvial soil, whose beverage is water as pure as that of the Tigris, are not generally subject to calculous complaints; and so I have found it here, having only met with two cases, one in a young man, a Persian, who had a large stone in his bladder; the other in a boy of this place. I was requested to operate in both cases, but having no lithotomy instruments, I was obliged to decline.

Of malignant diseases, such as cancer and medullary sarcoma, I have not seen nor heard of a case. Dracunculus is not met with here.

I have seen only two cases of erysipelas; one was in a drunken Mahommedan, with a worn-out constitution, to whom the disease proved fatal; the other was in the person of a European, and as it was in some respects curious, I subjoin a history of it. It occurred on board the Hon'ble Company's steam-vessel "Nitocris," during the height of the epidemic fever in the summer of 1849. The lower deck was crowded with sick, and although it was ventilated as well as possible under the circumstances, we had an example of what is so frequently seen in hospitals—a wound taking on erysipelatous inflammation. I am the more induced to relate this case, as it was complicated with an affection which is not very common, but which I have met with several times, viz. impaction of fæces in the cœcum, giving rise to sub-acute inflammation in that portion of the bowel, and in the subjacent cellular tissue:—

William Wade was admitted into the sick list on the 10th June 1849, with what is commonly called "House-maid's Knee." The inflammation ran high,

and suppuration took place. On the 14th an incision was made into the inflamed bursa, which gave exit to much sanious pus. The inflammation subsided, the wound was healing, and the case progressed favourably until the 28th, when he had a rigor, which lasted for 2½ hours; this was followed by hot and sweating stages, as in fever. On the anterior and superior aspect of left knee there was a painful patch of erysipelatous redness, as large as the palm of the hand. He had the following medicine three times:—

℞ Pulv. Antimon. gr vi, Calomel gr ii m.

28th, *Vespere.*—Has had much vomiting, erysipelas extending around and above the knee.

29th.—Much less fever; vomiting continued until this morning; no pain in leg; redness not so intense; bowels have not been moved for two days.

℞ Sulph. Magn. ℥ iss, Acid. Sulph. Dil. ʒ ss, Aquæ ℥ vi m. et solve. st. sum.

Vespere.—Vomited the medicine; bowels not moved.

℞ Calomel gr iij, Extr. Colocynth. co. gr iij, m. ft. pil. ii statim. sumend.

30th, *Mane.*—Bowels have been twice freely moved; tongue cleaner, but still white; fever decreasing, and redness on leg fading.

Vespere.—Continues to improve, but has a sense of fulness in abdomen.

Repet. Pil.

1st July.—Is considerably better; pills did not operate.

St. sumend Haust. Purgant.

2nd.—No fever, but leg is more painful; in the middle third of leg, over the tibia, there is a dark purplish patch, in the centre of which is a circular depressed spot, of the size of a shilling, which is of a deeper color, and more painful; bowels free; tongue clean.

℞ Sulph. Quinæ gr iij, Pulv. Dover. gr v m. ft. Pulv. ter in die sumend.

3rd.—Redness and pain have extended down to ancle and foot, which are considerably swollen; the dark spot mentioned in yesterday's report presents the same appearance, but is not painful to-day; the purple color seems to be more diffused; the small dark central spot is the cicatrix of a bruise received fourteen years ago; pulse quick; tongue white; bowels opened.

Cont. Medic.

5th.—Complains of pain in situation of cœcum, and ascending color; bowels costive; has had some vomiting; tongue white; leg much the same.

Pulv. Jalap. co. ʒi, statim.

6th.—Leg is better, but pain in abdomen has increased; there is a distinct fulness over the cœcum; bowels have been only once moved.

℞ Pil. Hydr. gr iij, Extr. Colocynth. co. gr viij, m. ft. pil. ii statim sumend, et repet. h. s.

7th.—Bowels have been only twice moved, and that not freely; pain and fulness in abdomen as yesterday; tongue brown in centre, clean at edges; pulse good; erysipelas nearly gone; there is only a slight redness about the ancle, which is somewhat swollen and painful; the dark purple patch has nearly disappeared; leg slightly œdamatous; knee has assumed its normal shape; and there is now only a superficial healthy sore, of the size of a half rupee, below the patella, where the incision was made for the evacuation of the matter.

℞ Pil. Hyd. gr v, Ext. Colycynth. co. gr x, m. ft. pil. iij, ter in die sumend.

8th.—Vomited after taking the three first pills, and his bowels have not been moved; pain as before, but the fulness over cœcum less than it was yesterday; tongue coated.

Repet. Pil. ter in die, et si opus sit hab. Calomel gr iv, Pulv. Jalap. co. ʒiss, m.

9th.—Yesterday evening, his bowels not having been moved, he had the Calomel and Jalap, which purged him freely; the abdominal tumour is rather larger, and pain more severe than yesterday; tongue clean; leg is more inflamed and swollen.

℞ Calomel gr iij, Ext. Colocynth. co. gr iv, m. ft. pil i, bis in die sumend.

App. Fotus Abdom.

10th.—Bowels have been only twice moved since yesterday morning; pain in abdomen as before; tumefaction in region of cœcum is as large as an orange, hard, and painful to the touch; tongue clean; leg better.

℞ Mass. Pil. Hyd. ʒi, Calomel ℈i ol. Tiglii. gtt. xii m. ft. massa in pilul. xii quarum sumat i tertiâ quâque hora.

App. Fotus Abdom.

Vespere.—Took five pills, and had only one stool; has had very much griping and pain in abdominal tumor, which is now large as the fist, and prominent, raising up the abominal parietes.

App. p. d. C. C. et detrahet sanguinis ℥ vi, et postia, fotus. Omit. Pilul.

Statim sumend. Olei Ricini ʒiss.

11th.—Has had one stool; swelling decreased, but pain continues as before; tongue clean; pulse natural.

Hab. Calomel gr v, Pulv. Jalap. co. ʒiss, m.

12th.—Tumour rather larger; pain as before; was once purged yesterday; tongue clean; appetite good; leg much improved.

Hab. Mane et Vespere, Pil. Hydrarg. gr v.

App. Abdom. Hirudines xxxvi.

14th.—Leeches were not applied until yesterday, and now the tumor is much larger than ever, hard, and painful; bowels obstinately costive; no general abdomonial pain; tongue foul; this morning he had a ʒiss of Pulv. Jalap. co.

Hab. Meridie et Vesp. Aloes gr v.

15.—Was very freely purged yesterday, and at night had a copious stool of good consistence; abdominal tumour decreased in size, and free from pain. Gums sore from mercury.

Hab. ter indie Aloes gr v.

16th.—Tumour slowly decreasing in size; bowels open.

Cont. Aloes.

18th.—Tumor rather larger, and more painful; tongue pretty clean; mouth better; has generally three copious stools, of natural consistence, daily.

Cont. Aloes. Stat. adhib. enema purgans.

19th.—Was much purged yesterday, with straining; swelling and pain in abdomen increased; some nausea; tongue a little furred; enema brought away some scybalœ.

App. p. d. Hirudines xxiv, et postea, fotus.

℞ Pulv. Ipecacuan, Ext. Gentian. aa. gr iij, Ext. Hyoscyam. gr iv m. ft. Pil. ii, Mane et Vespere sum.

Omit. Aloes.

20th.—Bowels have been several times moved; pain and swelling in abdomen very much reduced; pills produced nausea.

Omit. Pilul. Hab. Mane et Vesp. Aloes gr v.

22nd.—Swelling and pain slowly decreasing; bowels free.

Cont. Pil. Aloetic.

2nd August.—Tumor has gradually decreased in size, and is now only the size of an egg, and is not painful; bowels open; appetite good; general health much improved; leg is still œdamatous, but in other respects well.

4th.—Continues to improve slowly.

℞ Ung. Hydrarg. ʒss, Camph. 3ss, m. ft. Ung. 3ss to be rubbed three times daily.

Cont. Pil. Aloetic, i omni nocti.

5th.—Bowels open; leg still œdamatous.

℞ Potass. Iodid. 3i, Aqua lb. ii solve. sum ʒi, ter in die.

11th.—Has been taking the Hydriodate of Potass, and using the ointment with advantage; tumour almost gone; bowels open; leg is still slightly œdamatous. Dismissed.

I have only had two operations deserving the name; one was a case of cataract, in which the lens was depressed with very satisfactory results, to the equal delight and astonishment of the patient and her friends. The other was an amputation of the fore-arm, rendered necessary by the hand and wrist having been very much shattered by the bursting of a gun: the case did well.

The customs of the country do not permit the attendance of males on midwifery cases, but I have several times been called when the labour was difficult and protracted, with a request to feel the patient's pulse, and give her something to make her well. The midwives of the place have a knowledge of the use of ergot of rye; but they have no idea of the danger attending the administration at improper times, and I have never felt myself justified in supplying them with it, not knowing what might be the state of the woman to whom they wished to give it. As in all half-barbarous countries, parturition is in general a speedy and an easy process, requiring little manual assistance.

I have hitherto deferred taking notice of a disease which is peculiar to this country, and is here called Date-mark, because on a former occasion I had the honor of reporting all that I knew concerning it, and to that I have now little to add. This curious disease is endemic in the interior of Persia, in Turkish Arabia, and Syria, and is known by different names in different places. Here it is called Date-mark. In Aleppo it is called

"Il mal d' Aleppo," or "Bouton d' Aleppe." It probably, like the Aden and Scinde ulcer, and the Guzerat boil, is caused by some atmospheric or local influence which we cannot detect. It attacks all parts of the body, except those covered with hair, but chiefly the hands and feet in adults, and the face in children. The sores generally appear in autumn, when the dates become ripe,—hence the name,—and continue from six months to a year. There are two different forms of the disease, known by the names of the male and female. The first appears as a small tubercle or pimple, of a purple colour, which never suppurates, but continues to enlarge, and becomes covered by a thick light-coloured crust, which if detached is immediately renewed, and thus the disease continues, until finally the crust drops off, and leaves a healthy surface exposed. From this form of the disease there is no cicatrix left, only a dusky red or copper-colored mark. The female date-mark commences as a boil, attended often with a good deal of inflammation; a thin sanious fluid is discharged from this, and a sore is formed, which never discharges healthy pus, and gives much pain and annoyance. Sometimes the ulcer alternately enlarges and contracts, but more generally it remains stationary after the first month, until the disease has run its course; and then it heals, leaving a pitted, depressed, dark-colored cicatrix. This is an indolent ulcer, of the worst description; but it is more than indolent,—it has the characteristic appearance of a constitutional sore. I knew a case in which a distinguished surgeon in London mistook these for syphilitic ulcers, to the great annoyance of the gentleman who consulted him. There is another affection, which, although somewhat different from this, I have no hesitation in classing with it, and calling a third form of date-mark. It is a tubercle, and nothing more; it seldom attains a larger size than that of a pea, and gives very little uneasiness: it is always situated on the hands or feet. The tubercle is of a deep red color, and on the top there is a minute white scale, which, being detached, shows a small circular hole, from which a serous fluid may be squeezed. This at first is so like the sting of an insect, that it is generally supposed to be so, but it continues for several months, and leaves a dark-colored mark, exactly like that of the male date-mark. The two first varieties of date-mark

generally occur together, but they never attack an individual more than once; this third variety always appears alone, but may occur several times in the same person, and seldom lasts more than four months. Medicines internally and externally have been tried without any beneficial effect; and I am now quite reconciled to the native treatment, which consists merely in the application of a little sweet oil to the sores.

Among the natives of Baghdad the state of medical science is very low. The favourite doctrines of fate and predestination prevent many making use of any remedies during sickness; and those who do try to relieve themselves of their complaints put more faith in amulets and charms than in Hakeems and their drugs. There are now three or four European medical men in the place, who, besides holding appointments in the Turkish Service, are engaged in private practice among the natives, but with dubious success. Among the disciples of Esculapius there are hosts of Arabs, Persians, and Jews, men of reputed skill and large practices, who know a hot disease from a cold, and who treat them accordingly; who, while they pursue most active treatment, practise upon the credulity and superstition of the natives, and kill their patients with great *éclat*. As an instance of active treatment, during the fever of 1849, a Persian Hakeem was called to a patient, whom he found shivering and shaking in an ague. This was decidedly a cold disease, and the remedy was evident. He ordered an earthen oven, such as they use here, to be heated, and the patient to be put into it. This was done, and the mouth of the oven was covered with a thick bed-quilt. The poor patient shouted and struggled, but the attendants were ordered to keep him down until he perspired freely. After a time, one of the friends of the patient removed the quilt, and took him by the arm to assist him out of the oven: the skin of the arm peeled off in his hand; the man had been roasted to death!

As an instance of superstition and credulity, the child of a wealthy Armenian had an obstinate eruption on his face, which had resisted several doses of medicines, and was thought to be something serious; accordingly, a wise man was called in, who consulted his books, and muttered some mysterious spells; at length, after some days of deep study, he discovered that the

devil had taken possession of the child, and he found the very opening by which the unclean spirit had entered the house. Of course a man who could do this, and make himself believed, could find no difficulty in ridding the child of his unwelcome visitor, and being amply recompensed for his trouble. I myself had an interesting case of this description in an Arab, who believed that the devil had taken up his residence in his head and stomach. The "possessed" lived with me for some time, and after a severe struggle, and many stratagems, I succeeded in expelling the enemy of mankind by the administration of strong purgatives, and daily rubbing the whole head and nostrils with oil, which is a favorite remedial measure with the Arabs. The man was hypochondriacal, and labouring under great derangement of the chylopretic viscera, which was removed by the purgatives, and attention to diet. The oil was used merely because the patient believed that without it all other means were of no avail.

The nature of most of the remedies used by native practitioners is kept secret, and I have as yet been unable to discover the extent of their pharmacopeias. That they do occasionally use powerful medicines is certain; and that they also follow up the bread-pill system is equally certain. Blood-letting, cupping, and firing are favourite means of cure, and, as in days of yore in Europe, are put in practice by the barbers: blisters are only used as a last resource. They have an effectual and generally a safe method of procuring abortion, which I have been unable to discover; it is not procured by instrumental interference, however, but is brought about by the administration for several days of a very compound medicine. This practice is carried on to a fearful extent, and no attempt is made to check it.

On the following pages is a list of the most common medicines found in the bazaars of this place, with their Arabic names. The list is deficient in gums, of which there are many varieties in the market, but as I have not myself seen and identified them all, I have not included them with the other medicines.

White Oxide of Arsenic.... اسم الفار
Yellow Sulphuret ,, .. زرنيخ اصفر
Red ,, ,, ,, ... احمر
Mercury ..... سليماني
Metallic Mercury..... زيبك
Sulphur..... كبريه ذهابي
Sulphuret of Antimony..... كحل
White Naphtha..... نفض انيض
Castor Oil..... دهن الخروة
Olive ,, ... ,, الزيط
Almond ,, ... ,, الوز
Oil of Cloves..... ,, القرنفل
,, Cinnamon..... ,, الدارچني
,, Frankincense.... ,, العود
,, Peppermint..... ,, النعنا
,, Sesame..... ,, شيرج
White Poppy..... خشخاش ابيض
Black ,, ... ,, اسود
Mustard..... خردل
Linseed..... بزركتان
Quince Seed..... ,, الهيوة
Tamarinds..... ترهندي
Lemon Juice..... مائي نومي
Liquorice..... سوس
Jalap..... جلابا
Nitrate of Silver..... حجر الجهنم
Sandal Wood..... سندل
Carbonate of Potash..... قلى
Sulphuric Acid..... دهن كبريه
Nitric ,, ... تيزاب
Prunes, much used as a laxative, with violets, &c..... الوبخارة
Rind of Pomegranates.... قشر رمان
Colocynth..... حنظل
Rosemary..... حبق الجسور
Nutmeg..... جوزبوة

Turmeric..... كركم
Cardamom Seeds ..... هيل
Cloves ..... قرنفل
Cinnamon ..... دارچين
Violet flowers, used as a laxative for children..... ورد البنفسج
Red Rose leaves, used in form of infusion..... ورد جنبد احمر
Cassia Lignea..... قصب الفلوس
Saffron..... زعفران
A species of Manna.... من افرنجي
A species of Indian Nut..... فوفل ابيض
Opium ..... افيون
Laudanum ..... تريك
Rhubarb ..... ريوند
Sarsaparilla..... عثيدة
Assafœtida..... صمغ المحروث
Gum Tragacanth... ,, القثاد وكثيرا
Gall Nuts..... عفص
Anise Seed..... انيسون
Safflower ..... عصفر
Cocculus Indicus..... زهر السمك
Yellow Aloes..... صبر اصفر
Senna..... سنامكي
Cummin Seeds ..... حب السودة
Carraway Seeds..... غزنايج
Oil of Balsam..... دهن البلسان
Catechu..... قوقل
Myrrh..... مرمكي
Gamboge..... رب الريوند
Gum Ammoniac ..... حب الوشق
Gum Arabic..... صمغ عرابى
,, ,, from Koordistan.. ,, كردي
Gum Mastich ..... علك
,, ,, ... مستكي

Camphor.....	كافور
Sal Ammoniac.....	شنادر
Saltpetre.....	شورة
Sulphate of Copper.....	زنجارة
,, Zinc	توتيا ابيض
,, Alumina.....	شب
Bitartrate of Potash..	ملح الطرطير
Sulphate of Magnesia...	,, فرنكي
Verdigris.....	زنجارجاون

Cubebs.....	كباب چيني
Cannabis Indica.....	بنج
Quinine.....	كنا كينا
Frankincense.....	عود
Manna.....	من السماء
Musk.....	مسك
Castor.....	جند
Oil of Sandal Wood. ...	دهن سندل
Linseed Oil.....	,, الكياس

Article III.

Annual Report of the European General Hospital at Bombay, from April 1st 1850 to March 31st 1851. By M. Stovell, Esq.

Presented by the Medical Board.

At the close of the last official year, viz., on the 31st March 1850, there remained 55 patients in Hospital. During the past twelvemonth 1,062 were admitted, making a total of 1,117, who have been under treatment. Of these, 983 have been discharged, 57 remained in Hospital on the 31st ultimo, and 77 died, being a per-centage of 6.893 on the whole number.

2. At the period at which the last Report closed, the season was exceedingly healthy, the number of patients in Hospital unusually small, and the amount of severe disease comparatively slight. As usual, however, the heat of April brought an increase in the number of sick, and the number remained high till the close of the monsoon. The largest number of patients admitted in any one month was 130, in August. The admissions from April to September were above a hundred monthly, but since then they have ranged from 85, the highest, to 61, the lowest; the latter in February, which is perhaps generally the most healthy month in the year. During the hot season, the most prevalent of the more important diseases were dysentery and hepatitis. There were only two cases of cholera, but there was a good deal of diarrhœa. There was not a single case of remittent fever, and only a few cases of slight intermittent. During the monsoon months dysentery and diarrhœa increased both in number and severity, and cholera prevailed to some extent. There was also a good deal of remittent and intermittent fever, the former more particularly in July and August, the latter in August and September. In October there continued to be a good deal of dysen-

tery, but much less remittent fever, though more intermittent. During the earlier part of the cold season, fever in this latter type was the most prevalent disease, but by January it had almost disappeared; and had it not been for the prevalence of cholera, the remaining portion of the cold season would have been a very healthy period. During last month,—which may be viewed as one of transition from the subsiding cold of February to the commencing heat of April,—a few cases of cholera were admitted, and there were four casualties from dysentery, but otherwise there was no unusual amount of severe disease. During the whole year there were numerous admissions of scurvy from merchant ships.

3. The annexed Return of the diseases which have been under treatment during the year will show at a glance most of the important points connected with the number, the nature, and the classes of such diseases, as well as the result of treatment; and for the sake of easy reference I have framed the Return in an abstract shape, admitting only the names of those diseases which have been under treatment. I will now proceed to offer such brief remarks on the more important and prevalent diseases, their pathology, peculiarities, and treatment, as may seem necessary for giving a distinct outline of the medical history of the Hospital during the past twelvemonth.

4. Fever. This, as usual, has been the most prevalent disease, the number of cases under treatment having been 135, or 12.086 per cent. on the total number of all diseases. Of these 27 were ephemeral, 74 intermittent, and 34 remittent. There was not a single case of pure continued fever.

5. Remittent Fever. The greatest number of admissions was in July and August, but, excepting in April and May, a few cases were admitted every month. There was no distinctly peculiar feature in the general character of the majority of the cases, as contrasted with the remittent fever of former years. In the milder forms there was no appreciable evidence of the existence of local inflammatory action. There was nothing in the symptoms to support the opinion of those who still maintain that fever is a mere secondary disease, the invariable result of local inflammatory action, the seat of which, according to one set of men, is in the

brain, and to another, in the gastro-intestinal mucous membrane. In these milder cases there was merely an indication, in a remittent form, of the two leading phenomena of fever generally, viz., a disturbance of the nervous and circulating systems, with the invariable consequent result of more or less functional derangement of the skin and of one or more of the important internal organs. In the more severe cases, however, there was cerebral, pulmonary, or gastro-enteritic complication, and as far as symptoms during life, and morbid appearances after death, enable me to form an opinion, I should say that the brain was the most constant seat of local inflammatory action.

6. The casualties were five, being a per-centage of 14.706 on the cases treated. One of these occurred in a clerk in one of the public offices, who had been long ill, and under treatment elsewhere. His whole surface on admission was of a deep yellow tint ; his tongue coated and dry ; and sordes were beginning to appear about the lips. He died on the fifth day. A second case occurred in a pauper, a man of dissipated habits and of broken constitution. A third occurred in a seaman belonging to the Indian Navy, who had been eight days under treatment on board ship previous to admission into Hospital. His system had been affected with mercury, but without benefit. On the contrary, its specific operation had probably been productive of mischief. His skin was dry and hot ; his tongue rough, coated, and dry ; low delirium supervened, and he sunk forty-eight hours after admission. A fourth case occurred in a seaman, who had contracted the disease at Muscat, from which place he arrived the morning of his admission. His whole surface was of a yellow tinge, and he was greatly exhausted. Sordes soon began to collect about the teeth ; hiccup and delirium supervened ; and he died fifty-three hours after admission. The fifth case occurred in a child, who died from the effects of cerebral complication.

7. A *post mortem* examination was made in four out of these five cases. In three there was more or less congestion in the vessels on the surface of the brain, and serous effusion over the surface, in the ventricles, and at the base. In one of these three there was a bright red circular spot, about the size of a rupee, at

the inferior portion of the middle lobe of the right side, and the adjoining substance of the brain was softened. In another of these cases there was a large abscess in the right lobe of the liver. In the fourth case the vessels of the brain and its membranes were not at all congested, and there was no effusion. The liver, too, was quite normal, but both lungs were gorged with a sanious frothy fluid.

8. In the slighter cases of remittent fever—cases in which there was no evidence of congestive or inflammatory action—the treatment has been very simple. I have generally trusted to antimony and quinine. The former seldom fails in acting on the skin and bowels, and assists in producing a remission sufficiently distinct to justify the exhibition of the latter. When the antimony failed in exciting secretions from the intestinal canal, a dose or two of calomel has been necessary, combined with or followed by a purgative. Recovery in such cases, and with this treatment, has usually been rapid and satisfactory. In the more severe cases, however—cases in which the remissions were short or somewhat indistinct, and in which there was evident local inflammatory action—the treatment has of necessity been more active. In these cases, local depletion has generally been resorted to, with the exhibition of calomel in larger or smaller doses, according to the respective indications of each individual case. Antimony has at the same time generally been given, unless contra-indicated by the existence of irritability of stomach, arising from gastro-enteritic complication. In many cases it has been necessary, for the same reason, to give active purgatives with much caution. In cases of cerebral complication, ice to the head has been frequently employed with marked benefit, and blisters, preceded by local depletion. In some cases a remission has been followed by partial collapse, lasting for several hours, and rendering the use of ammonia and other stimulants necessary. In one case, in particular, this collapse was so excessive that I was apprehensive that the patient, a boiler-maker in the Indian Navy, would have sunk. In all cases I have carefully watched for the first moment in which quinine could be given with any probability of advantage, always bearing in mind that the most important indication is to take measures calculated to prevent the recur-

rence of a febrile accession. On the very first remission, therefore, I have usually given quinine, and sometimes in combination with the hydrargyrum cum creta, when a loaded tongue has indicated the existence of irritation in the lining membrane of the stomach and bowels, and more particularly if the secretions were unhealthy.

9. Intermittent Fever. Seventy-four cases have been under treatment, the admissions being most numerous in August and the four following months. The greatest number in any one month was in September. There were two casualties. One occurred in a Gunner in the Ordnance Department, who had been sent down on sick certificate by the Staff Surgeon at Poona. In this case there was hepatic complication. The second case occurred in an Engineer in the service of the Bombay Steam Navigation Company. In this case there was pulmonary complication. There was no peculiarity in the general character of the cases which presented themselves, and they were generally uncomplicated with organic disease. In a few cases, however, the spleen was enlarged, and lengthened treatment became necessary. The quotidian was a much more frequent type than the tertian. The intermissions were generally distinct, and the different stages of each paroxysm well marked. In a few cases, however, complicated with visceral disease, or occurring in patients broken down by intemperate habits, the intermissions were not well defined, the disease showing a tendency to pass into the remittent type. With regard to treatment, I need merely say that the great object kept in view was to prevent the recurrence of paroxysms, by giving repeated doses of quinine, at short intervals, for a few hours previous to the time at which the paroxysm was expected. This generally succeeded in the majority of uncomplicated cases; but in those patients where the disease was kept up by the existence of local disease, each case was treated according to the nature of the complication, and the consequent indication.

10. Dysentery. Seventy-eight cases have been under treatment, or 6.972 per cent. on the total of all diseases. Sixty-five of these presented themselves in an acute form, and thirteen in a chronic. The admissions were most numerous in April, July, and the four following months, but, excepting in February, a few

cases were admitted every month. The greatest number in any one month was in August. There were eighteen casualties, or 23·077 per cent. on the cases treated. Four of these occurred in seamen belonging to the Indian Navy; seven in seamen belonging to merchant ships; two in Serjeants belonging to the Ordnance Department; three in paupers; one in a woman; and one in a child. The cases which occurred in the sailors were chiefly in an acute form, and, with one exception, they had all been ill for many days previous to admission. The men belonging to the Indian Navy had been under treatment on board their respective ships for different periods: one for two days; a second for twelve; and the remaining two for fourteen days. They were all admitted with the disease in a severe form, and in an advanced stage. Six of the seven cases from the merchant ships occurred in men who had been ill for different periods, varying from three to twenty-one days, and without previous treatment. These cases were also in a severe form; and, from the neglect of previous treatment, some of them were in a hopeless state on admission: one died within six hours. The cases in the three paupers were in a chronic form and of long standing. The constitutions of two of the men had been previously quite broken. The two Serjeants in the Ordnance Department had been sent down from Kurrachee, where they had been long ill; and one was admitted in a state of extreme emaciation.

11. A *post mortem* examination was made in fifteen out of the eighteen fatal cases. In every instance there was ulceration, more or less extensive, in the mucous lining of some portion of the colon; and in two cases the ulcerative process had extended through all its coats into the cavity of the peritoneum; but in neither instance had any of the contents of the intestine escaped, lymph having been thrown out over the peritoneal portion of the opening. In one of these two cases there were several perforations of this nature; and in the gall bladder of the second were found two biliary calculi, the largest weighing twenty-eight grains, and about the size of a hazel nut. In several cases, portions of the lining membrane of the colon were found soft, pulpy, and somewhat discoloured; and in some instances it was in a state of complete sphacelus. In several cases there was consi-

derable thickening of the substance of the large intestines from deposit of fibrin in the sub-mucous cellular tissue; thus accounting for the state of ulceration, and partly also for that of gangrene. In two cases there was complete separation, and expulsion per anum, of the mucous membrane of some portion of the large intestine, to the extent of six inches in length; the separated portion in one instance retaining its tubular form entire. It occurred in the fatal case of James McFall, of the ship *Euterpe*. He died two days after the occurrence. The second instance,—that in which the separated portion did not retain its tubular form,—was in a Serjeant of the Ordnance Department, who lived three months after the separated portion had come away. In no less than ten cases out of the fifteen the liver was normal, or nearly so, both in size and structure. In two cases it was enlarged, but normal in structure. In a third case it was disorganized throughout, being softened to so great an extent that it broke down under the slightest touch. In the two remaining cases there were abscesses in the liver.

12. Thus it will be seen that hepatic complication was only met with in the minority of cases, viz. in five out of fifteen. This result is opposed to my former experience at this Hospital; and is probably to be attributed to the circumstance of the majority of the fatal cases having occurred in seamen, many of whom were fresh from Europe, and not, in the same proportion as in former years, in pensioners, and in military and other patients of long residence in India.

13. No feature of the disease has been more variable than the nature of the secretions in different cases, and even in the same case at different times. In the most severe forms, and particularly in the advanced stages, the stools were serous, varying in color, and mixed with more or less blood. In the very worst cases they generally consisted, for a time, chiefly of a reddish-brown serum, like the washings of putrid flesh. In these cases there was invariably present the very peculiar dysenteric fœtor. In some cases they were feculent almost throughout, with merely a little blood and mucus in the first stage. In one fatal case the motions were for some time fluid and muco-feculent, but they afterwards became almost natural, and there were only two

in the twenty-four hours. This continued to within five days of death, when they became more frequent and fluid again. In this case there was ulceration to the extent of perforation. In some cases the dejections were at one time distinctly feculent, without a trace of blood or mucus; at other times they were serous; and again sometimes they consisted entirely of mucus and blood, with floating shreds of separated mucous membrane. Occasionally all these different varieties were visible in the same motion.

14. The Medical Regulations having wisely guarded against the admission into reports, of all theories or opinions not supported by facts, I will not enter upon the many disputed points connected with the pathological condition of the disease in its earlier stages, simply because I have not had opportunities of making *post mortem* examinations in these earlier stages. I have therefore been unable to test the accuracy of the assertion, that "inflammation and ulceration of the solitary glands constitute the earliest morbid change," or on the other hand, to state from direct observation whether the first morbid change takes place in the membrana propria itself or in the vascular layer subjacent to it. It cannot be doubted, however, that in all severe cases these different parts become involved in the disease in its later stages; and practically these different opinions are but of little importance.

15. With regard to treatment I have but little to add to what I have already stated in previous reports. During the first stage of inflammatory action local depletion has generally been employed, more particularly in cases of recent origin; the extent and repetition of this depletion being made to depend on the particular indications of each individual case, always bearing in mind that the most effectual way of preventing ulceration is to subdue the preceding stage of inflammatory action as speedily as possible. Cases were of course sometimes admitted, in which there could be no reasonable doubt of ulceration having already commenced, and in which local depletion would have been injurious. With regard to the use of calomel I need only say, in general terms, that it has been employed in small doses in all recent cases, with the view chiefly of correcting secretions and of preventing the effusion of lymph, but never with the intention

of producing its specific action. The continuance of its exhibition has been made to depend on the appearance of the tongue, the character of the secretions, and the absence or presence of abdominal tenderness. On all occasions it has been combined with opium, and generally with ipecacuan. I have generally omitted its use the moment the secretions have assumed a healthy character. In nearly every case, and in every stage, I have employed ipecacuan combined with opium, and it has appeared to me to exert a more uniformly beneficial influence, particularly in acute cases, than perhaps any other medicine. Opium in all cases, acute or chronic, and in all stages, is a most valuable remedy. Castor oil has been the usual purgative employed; but except in the earlier stages, and in the more acute cases, I do not think the use of this class of medicines is indicated. In the stage of ulceration, particularly in the more advanced stage, it is not often that their employment can be beneficial. Fomentations generally relieve the feeling of pain or tenderness in the abdomen; and opiate enemata, frequently repeated, have almost invariably exerted great influence in relieving some of the more distressing symptoms, particularly the harassing feeling of tenesmus when the disease is in the lower portion of the intestine.

16. The treatment just mentioned, however, is applicable chiefly to the more recent cases, presenting themselves in an acute form. In chronic dysentery the state of matters is wholly different, at all events in the classes of patients who resort to this Hospital. It is usually met with in constitutions more or less broken down by long residence in India, and too often by previous irregularity of life. In such cases, and where the disease might fairly be considered dependent on ulceration of the mucous lining of the colon, it has always been a difficult disease to treat satisfactorily. The great remedy,—a voyage at sea,—has seldom been available; yet unless the general power of the constitution can be improved, there is but little hope of exciting and carrying on successfully the reparative process in the ulcerated membrane. The utmost attention to diet has been paid, varying it according to attendant circumstances, but making it always as nutritive as the weakened power of the assimilating organs would

permit. Tonics and astringents, in combination with opium, have chiefly been relied on. I have found the sulphate of copper, however, more uniformly beneficial than any other medicine, combined with opium. I have usually commenced its use in doses of a quarter of a grain, gradually increasing the dose to two grains, and sometimes to two grains and a half, repeated at intervals of four hours, by night as well as by day, whenever practicable. The opium has been combined with it to the same extent. I have usually found it produce most benefit when pushed very gradually to the extent of exciting slight nausea. In this manner I have in some cases continued its employment for weeks, and even months, occasionally omitting its use for a few days at a time. Accompanying this Report is the case of Edwin Bundock, a pensioned Private of Her Majesty's 17th Regiment, in whom this treatment was pursued with the utmost advantage for nearly three months.

17. Hepatitis.—Forty-two cases have been under treatment, being 3·760 per cent. on the total of all diseases. The admissions were most numerous in April, August, September, December, and January, but with the exception of July a few cases were admitted every month. The greatest number in any one month was in December. There were four casualties, or 9·524 per cent. on the cases treated. One occurred in an Assistant Overseer in the Road and Tank Department, who had previously suffered a good deal from diarrhœa at Peshawur and at Poona. He was attacked at Kussara, near the Thull Ghat, and was a fortnight without medical attendance. He reached Bombay in a hopeless condition, and died eight days after admission. A large abscess, containing about three pints of thick pus, was found in the right lobe of the liver. The left lobe was normal in structure, but greatly enlarged, extending into the left hypochondrium. A second case occurred in an old Pensioner, who had charge of the flag-staff at Malabar Point. He had been long ill, and died eleven days after admission. His widow would not permit an examination. I entertained no doubt, however, about the existence of an abscess. A third case occurred in a seaman in the Indian Navy, who had previously been treated on board ship, and was admitted in a very advanced stage. He died within a week; and an

abscess was found in the right lobe of the liver. The fourth case occurred in a man, who had been treated for a month previous to admission by a Portuguese practitioner at Mahim. In this case an abscess pointed externally and was opened with temporary relief, but he gradually sunk and died ten days afterwards.

18. With regard to treatment I have nothing to add to what I have already stated in previous reports. With a disease so often insidious in its approach, and obscure in its development, the utmost caution and vigilance are required in the treatment, more especially as the severer forms of suppurative inflammation are liable to make their destructive approaches without exciting much alarm. It is not often observed in the practice of a Hospital like this, that patients are wise enough to apply for advice for hepatic irritation in an incipient state. They seldom seek advice until it is fully developed; more often still, not until inflammatory action has commenced; and sometimes not until suppurative inflammation has reduced them to a hopeless state. Usually, I think, the more acute the pain at the commencement of an attack of hepatitis, the less probability there is of its terminating unfavorably; for the greater is the probability that the inflammatory action is confined to the surface or investing membrane of the liver. To be brief, however, I need merely say that I have treated the more acute cases of hepatitis, as mentioned in former reports, by depletion, chiefly local, and by the use of mercury, purgatives, antimony, and counter-irritation. In the more chronic forms I have sometimes used the nitro-muriatic acid with other means, modifying the treatment on all occasions according to the varying indications of each individual case. With regard to the use of mercury, in particular, I consider it of the highest value, in some form or other, in every case which has not run on to suppuration. When this has clearly taken place, mercury must of necessity do harm. My chief aim in these cases has been to support the strength, and at the same time to meet particular symptoms, as they arose, by appropriate treatment.

19. Cholera.—In my report of this Hospital for 1847, I mentioned the very unusual fact of only one case of cholera hav-

ing been admitted. During the year now under review, the state of matters has been very different. This disease, unhappily, has been more than usually prevalent throughout the island; and, as might have been expected, it showed itself to a considerable extent among those classes of Europeans who resort to this Hospital. Thirty-one cases were admitted, being a per-centage of 2.775 on the total of all diseases under treatment. The casualties were twenty, or 64·516 per cent. on the cases admitted. The disease was not confined to any particular month or season, but was prevailing as an epidemic throughout a considerable portion of the year. Cases were admitted every month, excepting in May, October, and November, the admissions being most numerous in July, December, and January. Of the thirty-one cases, twenty-one occurred in seamen; one in a pensioned soldier; one in a pauper; two in apprentices of the Engineer Department of the Indian Navy; one in a clerk; one in a farrier; two in women; and the remaining two in children. Twenty-one of the cases were admitted in a state of collapse, and many of them in a very advanced stage. Seventeen of these died. The remaining ten cases were admitted previous to collapse, and of these only three died. In eighteen of the thirty-one cases, the disease commenced with purging; in eight it commenced with vomiting; and in the remaining five cases, purging and vomiting came on simultaneously, or nearly so. The ages of the patients varied from three years to forty-five. Five were under twenty; eight were between twenty and thirty; thirteen between thirty and forty; and five between forty and fifty. The duration of disease previous to admission varied from one hour to forty-eight hours. Five were admitted under six hours; fourteen between six and twelve hours; five between twelve and twenty-four hours; and seven between twenty-four and forty-eight hours. There was no marked peculiarity in the character of the disease. In nearly every case there were cramps, more or less severe; and the patients, almost without exception, preserved their mental faculties nearly to the last hour of existence. In several cases, admitted in the advanced stage of collapse, there was neither vomiting nor purging after admission. Four cases sunk within two hours and a half. In one case the patient rallied from the primary attack, but sunk twelve days afterwards from cerebral complication.

20. *Post mortem* examinations were made in fifteen out of the twenty fatal cases. The most striking feature in nearly every case was the peculiar character of the blood, in the arteries as well as veins. It was almost invariably black and thick; in some cases almost like treacle; and it was met with in all situations,—in the brain, lungs, heart, liver, and kidneys. The cavities even of the *left* side of the heart were, in the majority of cases, filled with it, as well as the cavities of the right side, and sometimes it was found in the aorta. The lungs and liver in most instances were gorged with it, bleeding freely on making the slightest incision. There was generally more or less congestion on the surface of the brain; and in many cases there was serous effusion to the extent of three and four ounces, and this, too, in instances where the mental faculties remained unclouded to the last, thus affording further proof that effusion within the calvarium does not necessarily produce derangement of these faculties. The peritoneal reflections over the small intestines were in some cases a little congested, and the mucous membrane of the stomach frequently dotted with small florid patches, particularly towards the pyloric orifice. In some cases, however, the mucous membrane was unusually pale throughout. In one case, in which the patient rallied from the primary disease, but died subsequently from cerebral complication, the mucous lining of the stomach was of a dark-purplish color throughout. In nearly every case the stomach was distended with the conjee-like fluid which had been thrown off by the vomiting and purging. In some cases the lining membrane of the stomach had a partial coating of viscid mucus. The mucous membrane of the intestines did not present any uniform abnormal appearance. It was sometimes more or less viscid, like the same membrane in the stomach.

21. With regard to treatment, I feel that the less I say the better, for I have nothing of the least value to mention, and nothing to add to what has been said over and over again. Moreover, I believe it would be difficult to prove from the recorded results of experience, that any one particular method of treatment has been more generally or more uniformly successful than another. Every kind of treatment has proved alike inefficacious; and in the present state of our knowledge it is much to be feared

that we shall continue to be too often baffled in our attempts at cure. The proximate cause is still enveloped in mystery, notwithstanding the efforts of the many master-minds which have been unceasingly directed towards its elucidation. The scourge still continues the great opprobrium of medicine, and the treatment, of necessity, borders on empiricism, but empiricism of that better kind which has been said to "suggest the right application of established facts in the art of therapeutics, although much knowledge may be wanting to elucidate the nature of the changes produced in the body by which the object is effected." I have shown that out of twenty-one cases admitted in the stage of collapse, seventeen died, while out of ten admitted in an earlier stage, only three died. This, therefore, may be regarded as an additional evidence of the fact, that it is in the earlier stage alone we can look for recovery with much confidence or even hope; but still, as three recoveries took place from a state of collapse, it may be regarded as an encouragement to persevere in our attempts, however hopeless matters may appear.

22. In the first stage, viz. that of premonitory diarrhœa, appropriate treatment may frequently, perhaps generally, effect great good. In this state I believe opium to be of the utmost value. I have generally combined it with calomel and stimulants. In the second stage, however, viz. that ushered in by vomiting, I never give opium, for I cannot see the indication for its use. I have usually given calomel, repeated at intervals of half an hour or an hour, and ammonia every ten minutes, with brandy and sago occasionally, and as much cold water or soda water as each patient might wish for. Mustard cataplasms have been applied to the abdomen, and warmth to the surface by means of hot bricks. Friction has always been used assiduously. I cannot say, however, that I give calomel with any confidence in the more severe cases or later stages; for under these circumstances I believe it lies in the stomach or some portion of the intestinal canal unchanged, the absorbents entirely losing their power. In three cases only has bleeding been tried, but in two of these recovery took place, although one was admitted in a state of collapse, and the other occurred in a seaman who had been weakened by previous disease. Both these cases were treated by

Assistant Surgeon Mead, lately appointed to the Hospital. The bad effects of taking purgative medicine unadvisedly during the prevalence of cholera were fully exemplified; for in two of the fatal cases the patients had taken salts and senna a few hours previous to admission.

23. Scurvy.—The admissions with this disease were unusually numerous throughout the year, no less than sixty-seven cases having been under treatment, or 5.998 per cent. on the total of all diseases. It is difficult to account satisfactorily for this very unusual number. Excepting one man from the Indian Navy, all the cases occurred in merchant seamen, belonging to thirty-one different ships, sailing from the following ports, viz. eight from London, ten from Liverpool, three from Sunderland, one from Hull, one from Greenock, three from Glascow, one from Hartlepool, one from Hamburgh, one from Port Philip, one from Boston, and one from Calcutta. Most of these ships made long passages, and did not touch at any intermediate port. Of those from Europe one was seven months; seven were upwards of five months; nine upwards of four months and a half, and the remainder upwards of four months, excepting three which made the passage just within the four months; and from each of these last, only one man was admitted. The greatest number of cases admitted from any one ship was from the Goliah, of Liverpool, from which seven men were sent to Hospital. She made a long passage of nearly five months, sailing on the 6th of January, and not arriving till the 31st of May. The average number of days during which each man remained in Hospital was thirty-four.

24. In most of these ships a considerable number of the crew were affected, but the more severe cases only were sent to Hospital. The slighter cases were kept on board. In the cases admitted, the disease presented itself in nearly every degree and every stage. In a few there was merely a swollen condition of the gums, a few petechiœ on the lower extremities, slight debility, and a little stiffness in the knee-joints. In cases more advanced or more severe, there was, in addition to this, the peculiar sallow and somewhat dusky countenance so generally attendant; lividity, as well as a swollen condition of the gums; ecchymoses on the upper as well as lower extremities; contraction as well as stiff-

ness in the knee-joints; a dry harsh skin; and fibrinous effusion to greater or less extent in the cellular tissue of the lower extremities, rendering them sometimes as hard as a board. In cases still more advanced, still more severe, or of longer unchecked duration, there were, in addition to these symptoms, petechiœ on the trunk as well as extremities; node-like thickenings of the periosteum; great debility and emaciation; a feeble pulse; dyspnœa; breathlessness; palpitations; and a tendency to syncope. In one case there was the most excessive palpitation I ever witnessed, communicating the impulse over the whole of the right side of the chest and upper portion of the abdomen, and producing great watchfulness and distress. It was subdued by a full dose of morphia. In one case the result was fatal. A seaman was admitted on the 29th October in a state of extreme emaciation and exhaustion, his ship having anchored the previous day, after a passage of five months, from Liverpool. His trunk was covered with large purple blotches, as well as his extremities; and his weakness was so excessive that he could scarcely turn in bed. He died suddenly, five days after admission. The *dura mater*, at one point, was of a livid colour, the result, apparently, of the scorbutic diathesis; and there was slight serous effusion both at the base of the brain and in the peritoneal sac; but the viscera of the three great cavities were quite normal.

25. With regard to the more obvious exciting causes of the disease in these particular ships, or why it should have made its appearance in these thirty-one vessels only, rather than in others out of the large number which dropped anchor during the year, many of which also made long passages, I am unable to throw much light. In most of them spirits were served out; and lime-juice, in larger or smaller quantity, in all. The more intelligent men themselves, particularly those belonging to the Liverpool and Glascow ships, almost invariably attributed the disease to two causes, viz. bad salted provisions and exposure to wet; and perhaps they were not far wrong. I have never known a case of scurvy admitted from any ship belonging to Mr. Green, or indeed from any of the first-class passenger ships. On board these vessels there is a large crew, who are well dieted and have comfortable accommodation below deck. They are consequently

not much exposed to wet in the cold, rainy latitudes. In the smaller ships, on the contrary, there is frequently no accommodation below for the crew ; and they are often exposed to long-continued wet in their berths under the forecastle. Many men said their clothes and bedding had sometimes been wet for a fortnight at a time. These causes, therefore, I have no doubt, assisted in many instances in exciting the disease. The predisposing cause was doubtless the length of voyage, or rather the want,—consequent upon the voyage,—of those constituents of vegetable food which are essential to the maintenance of health. It is certain that the symptoms do not develop themselves until the systems of the men have been deprived for a considerable time of these essential constituents.

26. And this leads naturally to the consideration of the very important subject of its proximate cause, or, in other words, the physical condition of the disease. On this, however, we are greatly in want of further light. In proportion as the doctrines of general pathology have varied, so have the general opinions on the proximate cause of scurvy. Still, it has generally been regarded as essentially dependent on a morbid change in some of the proximate component parts of the circulating fluid. The disease is plainly one of a peculiar kind of anœmia, depending on the loss of some element essential to the healthy condition of this fluid. The symptoms comprise a series of phenomena indicating this very clearly ; but we require a much closer examination into the precise nature of its deviations from the normal standard before the subject can be cleared up. To add to the obscurity previously existing, late writers on the subject are opposed in opinion. M. Andral, for instance, states that the abnormal condition of the blood depends essentially and solely on a diminution in the quantity of fibrin. In one case, in which he examined the blood, he found it to contain only 1·6 of fibrin in 1,000 parts, instead of the mean average proportion of 3. MM. Deyeux and Parmentier, on the contrary, in three cases of scurvy, found the blood as rich in fibrin, and the clot as consistent, as in health. Mr. Busk states that the abnormal condition mainly consists in the amount of fibrin, albumen, and salts and water, exceeding the proportion in health, while that of hematosine falls below it.

MM. Becquerel and Rodier, on the contrary, are reported to have stated that the only positive modification to be detected in the blood is a very considerable diminution in its density. Dr. Budd, moreover, states that together with the morbid state of the blood, there is some deranged condition of the capillaries, allowing transudation. Dr. Garrod, again, appears to entertain some of the views and opinions which were held by Dr. Stevens; and seems to think that scurvy arises from a deficiency of potash in the blood. It is therefore clearly manifest that the subject requires further investigation.

27. I should not have alluded, even thus briefly, to the subject of the physical condition of the disease, had not its treatment on scientific principles been involved in the question; but so long as its real nature remains a subject of dispute, so long will its treatment be empirical. A patient is removed from the predisposing causes, is put upon a good diet, including vegetables, and he soon gets well, presenting, as remarked by Lind, "a remarkable instance of the quick diminution of the effect from the cessation of the cause." Hence arises the question, What is the cause of this result?—what is the nature of the healthy change which takes place in the circulating fluid? In the treatment of the disease I thought it would be desirable to test the value of the recommendations of Dr. Stevens, and more recently of Dr. Garrod. They both, but the latter more particularly, are of opinion, that scurvy may be prevented or cured by the exhibition of the salts of potash or those articles of diet in which these substances are found, as almost all fruits, fresh vegetables, milk, and fresh meat. Thirty of the cases were therefore treated with carbonate of potash instead of the ordinary scurvy mixture of the Hospital, (consisting chiefly of cinchona, lime-juice, and arrack,) the diet of all being similar. I cannot say, however, that the cases thus treated got well sooner, or did better, than the others.

28. Delirium Tremens.—Forty-five cases have been under treatment, or 4·028 per cent. on the total of all diseases, the admissions being most numerous in the months of May, June, December, and March. The casualties were five, or 11·111 per cent. on the cases treated. One of these occurred in a pilot; a second in a boiler-maker; a third in a gunner in the Indian Navy;

and the remaining two in women. Four of these five cases were admitted in the second stage; one only in the first. A *post-mortem* examination was made in four cases. In three there was much congestion in the vessels of the brain. In all there was serous effusion in the ventricles, and at the base. In one the arachnoid was partially opaque throughout its whole extent. In another case, which terminated suddenly in death, there were layers of fibrin in the left auricle and ventricle, and slight induration of the aortic valves. In two cases the liver was enlarged, and in one of these very considerably, extending into the left hypochondrium and as low down as the umbilicus. In a third case the liver was granular, but normal in size. With regard to treatment, I have but little to add to what I have stated in former reports. Additional experience has more fully convinced me of the correctness of the views entertained by Dr. Morehead, and stated very fully in his able paper on the "Treatment and Pathology of Delirium Tremens," in the 6th number of the Transactions of the Medical and Physical Society. Experience has amply proved the tendency of the second stage to run a certain course; and has at the same time proved the soundness of the consequent indication of cure, viz. "not by full doses of narcotics to force a state of sleep, but to conduct the patient through the period of delirium by withdrawing all sources of irritation, by moderating or sustaining the circulation, and by calming the nervous excitement."

29. As the Medical Board may probably consider my report inconveniently long, I will take but a very brief notice of the remaining diseases; and first of Ebrietas.—Thirty-four cases have been admitted, and one of these died. It occurred in a gunner on the pension list. Variola.—Five cases were admitted, and one died. It was a case of confluent small-pox, occurring in a seaman belonging to the Indian Navy. Bronchitis.—Twenty-seven cases were admitted, and of these one died. It occurred in a pauper, a foreigner, but the immediate cause of death was aneurism of the aorta. Phthisis Pulmonalis.—Twelve cases were admitted, and five died. Three of these occurred in paupers, and the other two in seamen belonging to the Indian Navy. Pneumonia.—Three cases were admitted, and one of these died. Diarrhœa.—Eighty-five cases were admit-

ted, and three died. One of these occurred in a serjeant on the pension list, who had previously been repeatedly in Hospital with delirium tremens and other diseases resulting from a long course of intemperance. The other two occurred in women, whose constitutions had been long broken down by irregular habits. Cephalalgia.—One case admitted under this head proved fatal. It occurred in a merchant seaman who was admitted in an emaciated state, but the precise cause of his state he seemed incapable of accounting for, beyond the general statement that he had been in bad health for some months. He merely complained of headache. He subsequently gave evidence of cerebral disease, and died within a month. The brain was found partially softened. Apoplexy.—Two cases admitted, and one proved fatal within two hours. It occurred in an old pensioned gunner, 57 years of age. He had long suffered from paralysis, and was admitted in a state of perfect coma and with a cold surface. Both lateral ventricles contained the largest clots of blood I ever saw in this situation. The two clots weighed four ounces and a quarter. The walls and floors of the ventricles were much softened. Dropsy.—Two cases proved fatal. One occurred in a quarter master in the Indian Navy ; the other in a clerk in one of the public offices. Obstipatio.—A merchant seaman, after recovering from a severe attack of dysentery, was admitted with complete obstruction of the bowels, and died on the sixth day. On examination, the cœcum was in a sphacelated condition, and a stricture was found to exist, being formed by a preternatural band of peritoneum stretching across the head of the cœcum, binding it down firmly in the right iliac fossa, and causing total obstruction of the gut. Verrucœ.—A seaman belonging to a merhant ship was admitted on June 11th with a huge bunch of warty excrescences connected with the verge of the anus, and filling up the whole of the fissure between the nates. His general health was good. On the 16th, and again on the 26th, ligatures were applied, and after each application a considerable portion came away. On July 2nd he was attacked with dysentery, and died on the 23rd. The greater portion of the lining membrane of the colon was in a sphacelated state. Query, Was the attack of dysentery in any way connected with the

application of ligatures? Hypertrophy of the Heart.—Two cases admitted, and one proved fatal. It occurred in an Italian, 60 years of age. His widow would not permit an examination. Syphilis.—Out of eighty-nine cases, one proved fatal. It was in a seaman of the Indian Navy, who was admitted in a very emaciated state, the result of secondary syphilis; and he sunk from diarrhœa. Ambustio.—A seaman, while drunk, was very severely burnt over the trunk; tetanus came on eight days afterwards; and he died in forty-eight hours. Fracture of the Skull.—A seaman of a merchant ship fell into the hold, was brought to Hospital in a state of complete coma, and died in two hours. There was extensive fracture at the base of the skull.

30. I have now given a brief account of all the fatal cases. The total number during the year was 77, viz. 7 from fever, 19 from dysentery, 4 from hepatitis, 20 from cholera, 1 from scurvy, 5 from delirium tremens, 1 from ebrietas, 1 from variola, 1 from aneurism of the aorta, 1 from pneumonia, 5 from phthisis pulmonalis, 3 from diarrhœa, 1 from cephalalgia, 1 from apoplexy, 2 from dropsy, 1 from obstipatio, 1 from hypertrophy of the heart, 1 from secondary syphilis, 1 from ambustio, and 1 from fracture of the skull.

31. The important subject of morbid anatomy has been constantly kept in view, and *post mortem* examinations have been made in every fatal case in which no objection was raised by relatives or friends. An examination has thus been made in 61 out of the 77 fatal cases; and for the sake of placing on record, in a convenient form, the leading characters of the pathology of the diseases of the year, I will conclude my report by giving a short summary of the morbid appearances found on dissection in each of these cases, with a brief introductory statement of the more prominent symptoms of each case respectively.

Case 1.—Febris Remittens.—Stephen Lauchlan, seaman in the Indian Navy, 22 years of age, was admitted on July 21st, having been under treatment since the 13th with remittent fever, on board the H. C. brig *Palinurus*. On admission, his skin was hot and dry; pulse 100, full; tongue dry, rough, and coated. He had some pain in the region of the liver, and his system had been affected with mercury. His gums were spongy, and his

breath had a strong mercurial fœtor. Leeches were applied to the region of the liver, and he took antimony. On the 22nd there was complete remission; his pulse was 120 and small; his skin cool, but beginning to feel clammy; and his bowels irritable. He took ipecacuan, quinine, and opium. Low delirium supervened; his abdomen became tympanitic; and he died on the 23rd.

Inspection seven hours after death.—Head.—Vessels on the surface of the brain much congested, and effusion of serum in the ventricles and at the base.

Chest.—Viscera healthy.

Abdomen.—Liver normal in size, but congested and bled profusely on being cut into; lining membrane of the colon thickened and discolored in several places; other viscera healthy.

Case 2.—Remittent Fever.—Sydney Smith, a clerk in one of the public offices, 35 years of age, was admitted on August 14th, stating that he had been ill several days with what appeared to have been remittent fever. On admission, however, his skin was cool, but of a deep yellow tint; pulse 92, soft; tongue slightly coated, and rather dry; bowels opened by medicine; no pain in the region of the liver or any other viscus; the right parotid gland was much enlarged, and there were several foul black sordes about the lips. He took quinine, morphia, and pil. hydrargyri. No improvement took place. His nights were restless, and he complained of feeling very ill, but could mention no particular ailment—merely a general feeling of uneasiness and debility; had a slight accession of fever on the 17th, and on the following day his eyes became suffused, and his mind wandered at times. His pulse rose to 120; his tongue became thickly coated, rough, and dry; and his surface was hot and dry. Cold was applied to the head, a blister to the nape of the neck, and he took antimony. He died early on the 19th.

Inspection five hours and a half after death.—Head.—Serous effusion over the whole surface of the brain; a considerable quantity also in the ventricles; and about three ounces at the base. At the inferior portion of the middle lobe of the right side there was a bright red circular spot, about the size of a rupee, and there was also softening of the adjoining portion of the brain.

Thorax.—Lungs highly congested; some old adhesions of pleuræ existed, and there was slight tuberculous deposit.

Abdomen.—The liver weighed four pounds and five ounces, and was so soft as almost to break down under the slightest touch; gall bladder distended; the whole of the viscera of a deep yellow colour.

Case 3.—Remittent Fever.—Aubrey Tibbs, a pauper, a man of broken constitution and of dissipated habits, 30 years of age, and five years resident in India, was admitted with a slight attack of dysentery on October 3rd, but was discharged well on the 9th. On the 28th of the same month he was again admitted with the same disease, but there was no urgency in the symptoms; and in a day or two he was convalescent. On the 1st of November, however, he had an accession of fever, and took calomel and antimony. The next day he became worse: the fever assumed the remittent type, and he rapidly became much exhausted; the pulse rose to 120, and was irritable; the tongue thickly coated; and there was great general restlessness. On the 3rd the surface of his body became slightly yellow, and the pulse still more rapid. The same treatment was pursued. By the 7th the whole surface was of a deep yellow colour, and the skin burning hot; but at the same time frequently moist. The calomel and antimony were continued, and quinine was given whenever there was a sufficiently distinct remission. The calomel did not produce its specific effect; and on the 14th low muttering delirium supervened, with a collapsed expression of countenance and fluttering pulse. Ice was applied to the head, and stimuli substituted for the previous medicines. He died on the 16th.

Inspection five hours and a half after death.—Head.—Brain itself normal, but the vessels on the surface much injected, and about six ounces of reddish serum effused at the base.

Thorax.—Viscera healthy.

Abdomen.—Liver greatly enlarged, pale, and granular; the right lobe contained a large abscess. There were several ulcerated patches on the lining membrane of the colon, and some of them partially cicatrized; other viscera healthy.

Case 4.—Remittent Fever.—John Shaw, 25 years of age, was admitted as a pauper on February 2nd with remittent fever,

contracted at Muscat, from which place he arrived the morning of his admission. His surface was of a slight yellow tinge; his tongue brownish, but moist; his pulse very feeble, and up to 130, though at the time of a complete remission; his bowels open once the preceding day; and he was excessively exhausted. He took quinine at short intervals, but within four hours there was an accession of fever. The surface became hot and dry, and the pulse full and bounding. He moaned occasionally, and did not answer questions very distinctly. He took calomel, and had cold applications to the head. The surface became more yellow, the tongue browner and dry, and the exhaustion more extreme. Sordes began to collect about the teeth; hiccup and delirium supervened; and he died on the 4th, 53 hours after admission.

Inspection fifteen hours after death.—Head.—Brain and membranes normal, and no congestion in the vessels.

Chest.—Both lungs gorged with a sanious, frothy fluid, which escaped in considerable quantity on making an incision. Heart normal in structure, but large, weighing twelve ounces; effusion of serum to considerable extent in the pericardium.

Abdomen.—Liver of the ordinary size, but of an unusual greenish colour; gall bladder distended; spleen enlarged, weighing 13 ounces; stomach and intestines normal.

Case 5.—Tertian Intermittent Fever.—James Glaskin, gunner in the Ordnance Department, 28 years of age, was admitted on the 8th of March, having been sent to Bombay on sick certificate by the Staff Surgeon at Poona, where he had been suffering from intermittent fever. His bowels were regular, his stools natural, and he both slept and eat well; pulse 84; tongue moist and clean. He took quinine. On the 30th he suffered from pain, which in a short time became intense, over the whole of the right side of the abdomen. His extremities became cold, and perspiration rolled profusely from his head and face from the extent of suffering. He took laudanum, ammonia, and castor oil; his abdomen soon became tympanitic, and his pulse rose to 140. Calomel, opium, and ammonia were given, with fomentations and assafœtida enemas, which afforded temporary relief; but his abdomen became more tympanitic, and his respiration extremely

hurried. Pulse 150, very feeble, and soon countlessly rapid. He died on 1st of April.

Inspection nine hours after death.—Chest.—Lungs and heart healthy; considerable effusion of pale yellow serum in the sac of the pericardium.

Abdomen.—Serous effusion to considerable extent in the cavity of the peritoneum; the whole of the intestines greatly distended by flatus; liver contained two large abscesses, one in the right lobe, the other in the left.

Case 6.—Dysentery.—Thomas Veary, serjeant in the Ordnance Department, 33 years of age, was admitted on the 27th of March, having arrived that day from Kurrachee, with dysentery. He was in an extremely emaciated state, and had been ill some weeks. He stated that from the time of leaving Sinde he had been generally purged three or four times during the day, and six or seven times by night, passing chiefly blood and slime. He had no abdominal pain or uneasiness, and bore pressure well over the whole abdomen. There was no fulness in the right hypochondriac region; his tongue was clean, red, and glazed; his pulse upwards of 100, small and feeble. He took small doses of calomel combined with ipecacuan and opium, but without improvement. He then took sulphate of copper and opium, the dose of the former being gradually increased to the full extent he could bear, and for a time with apparent benefit; but he again became worse, and lingered on in a state of extreme emaciation till June the 15th, when he died.

Inspection five hours after death.—Emaciation of the body extreme.

Chest.—Viscera normal; a small quantity of pale yellow serum in the sac of the pericardium.

Abdomen.—The entire peritoneal surface normal throughout; the great omentum much shrunk, and very much thinned; the liver normal in size, but very dark coloured; gall bladder somewhat distended; the mucous lining of the whole of the colon covered with extensive patches of ulceration, more or less advanced, and portions of the membrane completely sphacelated. In some parts the large intestines were contracted and thickened, and the greater portion of the small intestines also much thickened.

Case. 7.—Dysentery.—Charles Adams, 14 months old, the child of a serjeant in the Ordnance Department, was admitted on the 21st April with dysentery, having been ill a week, during which time his mother stated he had been constantly purged, his stools consisting chiefly of blood and mucus. On admission the abdomen was swollen and slightly tympanitic; the breathing hurried; and the pulse rapid and weak. He took calomel, ipecacuan, and opium; had fomentations to the abdomen, and enemas, but without improvement; and he died on the 27th.

Inspection six hours after death.—Abdomen.—On cutting through the abdominal parieties, about a pint and a half of serum escaped. The whole of the intestines were much inflated, and appeared to be denuded of their peritoneal covering, which apparently had been removed by ulcerative absorption. The coats of the colon were much attenuated; and upon slitting them open the lining membrane appeared much paler than natural. There were only three ulcerated spots visible, but one of these had penetrated all the coats into the peritoneal cavity; liver very pale, and firmer in structure than natural.

Case 8.—Acute Dysentery.—Andrew Anderson, seaman in the ship "Great Britain," lately arrived from Liverpool, 38 years of age, was admitted during the forenoon of April 24th. He stated that he had for three weeks been suffering from dysentery; complained of great abdominal tenderness, and of repeated calls to stool, passing, he said, merely blood and slime. Leeches were applied, and he took a dose of castor oil; he remained quiet for about an hour and a half after admission, but then became restless and agitated; and about 2 p. m. was so violent that it was found necessary to use restraint. He continued delirious, and did not answer when spoken to. There was the well-marked dysenteric fœtor from his body; his skin was hot and dry, and pulse rapid and small. His head was shaved, and cold applied; but he died six hours after admission.

Inspection fifteen hours after death.—Head.—Vessels of the brain much injected; and about two ounces of red serous fluid effused at the base.

Chest.—Viscera healthy.

Abdomen.—Intestines much inflated; lining membrane of the

colon covered with ulcerations, and in some parts gangrenous; liver enlarged, and the right lobe contained six small abscesses, some not larger than the cavity of a hazel-nut shell, and none much exceeding that of a walnut.

Case 9.—Dysentery.—John Harnett, seaman in the ship "Quinton," 18 years of age, was admitted on 11th of June with a huge bunch of warty excrescences connected with the verge of the anus, and filling up the whole of the fissure between the nates. Three months had elapsed since their first appearance; his general health was good. Ligatures were applied to a portion of these excrescences on the 16th, and again on the 26th; and after each application a considerable portion came away. On July 2nd he was attacked with dysentery, stools at first being frequent, fluid, and pale, entirely wanting in bile. They afterwards varied a good deal in appearance; sometimes yellow, sometimes consisting of mucus and blood. He took at first calomel and opium, but without improvement; his pulse becoming irritable, and as high as 120. Considerable tenderness supervened in the course of the colon. He was freely leeched; was fomented; and took ipecacuan in addition to the calomel and opium; he had also opiate enemata. By the 15th he was greatly exhausted, and sordes began to appear on the lips; there was a strong dysenteric fœtor from the body. The calomel was omitted, and he took little beyond large doses of opium, which appeared to afford relief. Died on the 23rd.

Inspection ten hours after death.—Thorax.—Viscera healthy.

Abdomen.—The lining membrane of the colon was found extensively diseased, the whole being in a black gangrenous state; other viscera healthy.

Case 10.—Dysentery.—John D'Souza, an European Portuguese, 30 years of age, was admitted on the 18th of June, in an extremely emaciated condition, having been suffering several months from dysentery. His stools were frequent, scanty, fluid, slimy, and very fœtid; skin cool; pulse 130, very small; tongue red, rough, and dry; no pain on pressure over any part of the abdomen. He took opiates, catechu, and mist. cretæ., but without benefit, and died on the 25th, a week after admission.

Inspection six hours after death.—Thorax.—Viscera healthy.

Abdomen.—The colon much contracted for about two-thirds of its length, and the coats much thickened. With the exception of the cœcum, the whole of the lining membrane of the large intestines thickly studded with small ulcers; liver and other viscera healthy.

Case 11.—Dysentery.—John Burke, a pauper, 46 years of age, of a broken down constitution, who had repeatedly been in Hospital with different complaints, was finally admitted on July 15th with dysentery. He stated that he had felt in his usual health the preceding day; but that during the night he had been seized with purging, and he found he had passed a great deal of blood. On admission his stools consisted chiefly of mucus and blood, and were passed with much straining. His skin was cool; pulse 72, rather full; tongue dry, brown and furred; there was some tenderness along the course of the colon. He took calomel, ipecacuan, and opium, had opiate enemas, and fomentations to the abdomen. The appearance of his motions subsequently varied very much; being sometimes of a brownish yellow colour; sometimes pale; sometimes dark; but more or less mixed with blood and mucus, fluid, and very frequent. By the 18th he was in a very exhausted, low state. The calomel was omitted, and the opium and ipecacuan continued; the former in doses of two grains and a half. No improvement took place; the pulse gradually rose to 120, and became exceedingly feeble; low muttering delirium supervened on August 3rd; and he died the following day.

Inspection three hours after death.—Thorax.—Viscera healthy.

Abdomen.—The lining membrane of the colon ulcerated in several spots, but not extensively; and the gut, generally, had a pale, bloodless appearance; other viscera healthy.

Case 12.—Dysentery.—Robert Dowes, seaman of the H. C. S.V. "Berenice," 47 years of age, was admitted on August 16th, having been treated on board his vessel during the preceding fortnight for dysentery. While on board he had been passing chiefly blood and mucus; but his first stools on admission were fluid and muco-feculent, eight or ten in the four-and-twenty hours. His tongue was somewhat coated, but moist; his pulse 80 and soft; and there was no pain on pressure of the abdomen.

He took ipecacuan, opium, and gentian. He improved for a time, his stools becoming almost natural, and only two in the four-and-twenty hours. On the 30th his stools again became fluid and more frequent, and he was put on the sulphate of copper and opium; but no improvement took place, and he daily became weaker. Ipecacuan and opium were again given, but without benefit; and he gradually sunk, and died on October 4th.

Inspection twenty-four hours after death.—Thorax.—Viscera healthy.

Abdomen.—Colon very extensively diseased throughout, the entire lining membrane being thickly covered with ulcerations. At one part a perforation existed, extending through all the coats; but the contents of the gut had not escaped into the abdominal cavity, lymph having been thrown out over the peritoneal portion of the opening. The gall bladder contained two biliary calculi, the largest weighing 28 grains, and about the size of a hazel-nut. Other viscera healthy.

Case 13.—Dysentery.—John Norman, seaman of the H. C. S. F. "Semiramis," 33 years of age, was admitted on August 19th, having been treated on board his vessel the two previous days for dysentery. On admission he stated that he had been suffering from dysenteric symptoms for three weeks, and had latterly been purged twelve times or oftener during the twenty-four hours, his stools consisting of blood and slime; his pulse was 100, and weak; his skin somewhat clammy; and his tongue coated with a yellow fur. He took calomel, ipecacuan, and opium, and had opiate enemas. His stools in a few days became feculent and yellow, though fluid; and sulphate of copper and opium were given; no further improvement took place; his stools continued fluid and frequent. Ipecacuan and opium were again given, but without benefit; his emaciation became extreme; his stools very offensive; his pulse rapid and feeble; his tongue rough and coated; his stomach irritable; and he gradually sunk, and died on the 6th October.

Inspection ten hours after death.—Thorax.—Viscera healthy, with the exception of some old pleural adhesions.

Abdomen.—Colon extensively diseased, the lining membrane

being covered with large foul ulcers; and at one part ulceration had extended through all the coats, but no fœcal matter had escaped into the abdominal cavity, fibrin having been effused over the peritoneal portion of the opening; liver of natural size, but rather pale; other viscera healthy.

Case 14.—Dysentery.—Samuel Snead, seaman of the H. C. S. F. *Queen*, 28 years of age, was admitted on the 2nd November, having been ill on board ship with symptoms of dysentery since the 19th of the preceding month. He had been repeatedly leeched previous to admission, and had been taking blue pill, ipecacuan, opium, castor oil, &c. On admission he was greatly exhausted; his skin dry; pulse 115, weak and irritable; tongue perfectly dry, rough, and of a brownish-yellow color; was perfectly free from pain all over the abdomen, excepting on close pressure over the region of the liver; his stools were scanty, and of a dark brownish, fluid feculence; for some days they had been passed four or five times in the four-and-twenty hours. He took calomel, opium, and ipecacuan. No improvement took place. By the 10th his lips and teeth were covered with black sordes; his stools consisted of reddish-brown serum, like the washings of putrid flesh; his skin was cold and clammy, and his pulse uncountably frequent and exceedingly feeble. Wine and sago were given repeatedly. He died on the 13th.

Inspection eight hours after death.—Thorax.—Viscera healthy; but the pericardial sac contained about four ounces of serum.

Abdomen.—Liver enlarged, pale, and granular; the right lobe contained a large abscess, principally filled with thick, curdy-looking pus; the colon was extensively diseased; there were several perforations, and nearly the whole of the lining membrane was in a sphacelated condition.

Case 15.—Dysentery.—John Campbell, seaman of the ship *Stag*, 52 years of age, was admitted November 18th, having been ill five days on board ship with dysentery. He had almost constant calls to stool, accompanied with severe straining and griping, his stools being serous and of a dark reddish colour; his skin was hot and dry; his pulse 100, and somewhat full; his tongue dry and coated; and the abdomen tumid, and painful on pressure along the course of the colon,

particularly in the right iliac region. He was freely leeched; took calomel, ipecacuan, and opium; and had fomentations and opiate enemata. No improvement took place; and the disease ran a rapid course. By the 22nd his surface became cold and clammy, and his pulse very feeble and uncountably rapid, his stools remaining of the same description, and very fœtid. He now took stimuli and opium; but gradually sunk, and died on the 26th.

Inspection five hours after death.—Chest.—Viscera healthy.

Abdomen.—The small intestines were much distended with flatus, and the peritoneal surfaces were congested. On examining the colon, the caput cœcum was found firmly adherent to the iliac cavity, and agglutinated by a deposit of lymph to all the adjoining parts. On making an attempt to raise it, it broke down under the pressure of the fingers, being partially sphacelated. The mucous lining of the colon was extensively diseased throughout, being studded with ulcerations. Liver and other viscera healthy.

Case 16.—Dysentery.—James McFall, carpenter in the ship *Euterpe*, 31 years of age, was admitted on December 3rd with dysentery, from which he had been suffering for five days. He said his bowels had been usually moved 8 or 9 times during the twenty-four hours, with great straining, and that he had passed chiefly blood and slime; skin cool; pulse 100, soft; tongue coated, and yellow down the centre; there was slight tenderness on pressure over the transverse colon. He was leeched and fomented, had a dose of castor oil, and took calomel, opium, and ipecacuan every four hours; he had also opiate enemata. No improvement took place; and by the 6th his stools became serous, and were mixed with blood; his tongue dry and brown; his pulse weak, rapid, and irritable; and his skin somewhat dry. He continued much in the same state, his stools varying somewhat in character, till the 17th, by which time his countenance was becoming collapsed and his strength nearly exhausted. On that day he passed about six inches of intestinal mucous membrane, retaining its tubular form; and on the 18th he died.

Inspection fourteen hours after death.—Chest.—Viscera all healthy.

Abdomen.—The colon extensively diseased throughout; in

some parts it could not be traced, being in a sphacelated condition, and breaking down under the slightest touch. There were several complete perforations in different parts of its course. Liver and other viscera healthy.

Case 17.—Dysentery.—Thomas Ward, a boy in the ship *John Wickliffe*, 16 years of age, was admitted on the 25th December with dysentery of three days' duration. He had been purged as often as 20 times during the twenty-four hours, and had pain on pressure over the ascending and descending colon. His skin was dry, and above the natural temperature; his pulse 100, full, but soft; and his tongue furred. He was leeched and fomented; had castor oil and opiate enemas; and took calomel, opium, and ipecacuan. No improvement took place; his stools continued very frequent, and varied much in character, sometimes distinctly feculent, without a trace of blood or mucus; at other times serous; and again sometimes they consisted entirely of mucus and blood. Occasionally all these different kinds of secretion were visible in the same motion. By the 5th January sordes began to appear about the mouth; his exhaustion became extreme; and he died on the 6th.

Inspection sixteen hours after death.—Chest.—Viscera normal.

Abdomen.—Liver normal in structure, but above the natural size; peritoneal surfaces all healthy; extensive ulceration in the mucous lining of the ascending and descending colon, particularly in the latter; and in some places it was in a state of sphacelus. Other viscera healthy.

Case 18.—Dysentery.—James Williams, seaman in the Indian Navy, 37 years of age, was admitted on January 24th, having been twelve days under treatment on board the H. C. R. ship *Hastings*, for dysentery. On admission he was weak and faint from the exertion of being brought ashore; his pulse was small, rapid, and irritable; his tongue dry; and he had repeated calls to stool, his motions being scanty and consisting almost entirely of blood. There was a large swelling occupying the *left* upper portion of the abdomen, clearly defined, and extending across the epigastrium to the right hypochondrium. At one point there was an indistinct feeling of fluctuation. He took calomel, opium, and ipecacuan, and had opiate enemas. The bowels continued

very irritable, the repeated calls to stool being attended by great straining, and the motions consisting of blood and mucus, mixed at times with a little fœcal matter. He became rapidly exhausted, and died three days after admission.

**Inspection ten hours after death.—Chest.*—The left lung, at its posterior part, and lower lobe particularly, gorged with blood, and did not crepitate; the right lung also slightly congested. Heart normal.

Abdomen.—On making an incision through the walls of the abdomen a considerable quantity of pus escaped. On tracing the extent of the abscess it was found to occupy the whole of the left lobe of the liver, which was completely excavated; the quantity of pus was from three to four pints; the right lobe of the liver was perfectly normal; the peritoneal reflections over the small intestines were somewhat congested; and the mucous lining of the colon dotted with spots of ulceration.

Case 19.—Dysentery.—John McKinnon, seaman of the ship *Lord Auckland*, 20 years of age, was admitted on March 13th, having been suffering four days from dysentery. On admission there was considerable tenderness over the abdomen, a soft pulse of 86, a furred tongue, and much straining on going to stool, which consisted entirely of mucus and blood. He was leeched, took castor oil, and had calomel, opium, and ipecacuan. This treatment was continued, but without improvement. On the 17th there was slight mercurial fœtor in his breath, and the calomel was omitted; he took opium in different forms, and his stools became feculent, but he sunk gradually, and died on the 23rd.

Inspection seven hours after death—Chest.—Viscera normal.

Abdomen.—Liver normal. The commencement of the colon was quite healthy, but the upper part of the ascending portion presented small patches of ulceration, which in the transverse portion was more advanced and greater in extent; the descending colon was one entire mass of disease; the mesenteric glands, along the whole course of the colon, were enlarged, and some were in various stages of suppuration.

Case 20.—Dysentery.—Ellen Johnson, 23 years of age, after a long course of debauchery, was admitted in a very emaciated

state on March 15th, having been ill three weeks with dysentery. Her motions were serous and reddish, her pulse 140, feeble and irritable; her tongue red and glazed, and her skin harsh and dry; there was no abdominal tenderness. She took opium, ipecacuan, and small doses of calomel, but without improvement; and she died on the 25th.

Inspection nine hours after death.—Chest.—Old pleural adhesions on the right side, and tuberculous deposit at the upper portion of the right lung. Left lung and heart normal.

Abdomen.—Liver normal in size, but somewhat softened, and of a light buff colour; peritoneal surfaces all healthy; small patches of ulceration and considerable congestion throughout the greater portion of the colon. Other viscera healthy.

Case 21.—Dysentery.—Robert Newton, a pauper, 22 years of age, was admitted on the 16th of January with dysentery, from which he had been suffering two or three months. He had been under treatment elsewhere, and had been bled, blistered, and taken a variety of medicines. On admission his stools were frequent, light-coloured, thin, but feculent, and passed with much straining. There was no abdominal tenderness; his pulse was 86 and soft; and his tongue clean, red, and glazed. He took opium in various forms, combined with ipecacuan and blue pill, but without improvement. He then took the sulphate of copper combined with opium, but still without improvement; and he gradually became greatly emaciated and exhausted. His stools varied much in character, sometimes consisting of mucus and blood, sometimes of reddish serum, and sometimes being entirely feculent. His tongue continued red and glazed; his stomach became exceedingly irritable; and he gradually sunk, and died on March 26th.

Inspection sixteen hours after death.—Chest.—Viscera healthy. The pericardium contained about an ounce of pale serum.

Abdomen.—Liver healthy; the peritoneal covering of the colon much injected; the mucous lining, particularly in the descending portion, covered with circular patches of ulceration; the mesenteric glands enlarged and indurated. Other viscera healthy.

Case 22.—Hepatitis.—Henry Hanse, seaman of the H. C. S. F. *Moozuffer*, 26 years of age, was admitted on the 3rd of

September with hepatitis, for which he had been treated on board since the 27th of the preceding month. While in the *Moozuffer* he had been bled, leeched, and cupped, and had taken calomel, antimony, and purgatives. On admission he complained much of pain in the right hypochondrium, increased both on pressure and on taking a deep inspiration. There was distinct fulness over the whole of this region; and at one part, in the centre space between the umbilicus and the margin of the ribs, there was a circumscribed round swelling, hard to the touch and extremely tender. The skin was hot and dry; pulse 100, full; tongue brownish-yellow, rough and coated; bowels open. His system had not become affected with mercury. He was leeched, and took calomel, antimony, and opium; the skin became relaxed and continued so, but no other sign of improvement took place. The mercury did not produce its specific action; and he gradually sunk, and died on the 10th.

Inspection three hours and a half after death.—Thorax.—Viscera healthy, but there were some old adhesions of the pleuræ.

Abdomen.—The right lobe of the liver contained a large abscess, situated towards the apex. On raising the cartilages of the false ribs, which formed part of the anterior wall of the abscess, the contents, consisting of a large quantity of thin purulent fluid, escaped. The inferior boundary was formed partly by the colon, the coats of which at that portion were much thickened from a deposit of lymph. No further morbid appearances were presented.

Case 23.—Hepatitis.—Thomas Prentis, an assistant overseer in the Road and Tank Department, 27 years of age and three years resident in India, was admitted on December 2nd, and gave the following account of himself. He said he was with the force which went to Peshawur, where he suffered a good deal from diarrhœa, but got quite well before the troops left for Bombay and continued so till September last, when he was again laid up for a fortnight with the same complaint at Poona. On recovering from this he was ordered to Nassick to superintend the making of part of a new road between that station and Kussara. He continued well till the middle of last

month, when he was seized with severe pain in the right hypochondrium, and with purging; and this state had continued ever since. There was on admission considerable enlargement of the left lobe of the liver, which extended across the epigastrium into the left hypochondrium; he did not suffer from much pain; the surface was of the natural temperature; the bowels relaxed; and the pulse 100, small and soft. He took at first calomel, antimony, and opium; but the two former were soon omitted, as slight febrile accessions towards evening and profuse sweats towards morning, made it evident, with other symptoms, that suppuration had taken place. Opiates in different forms were substituted, with the use of the nitro-muriatic solution and a nourishing diet. He died on the 10th.

Inspection twelve hours after death.—Head.—Brain and membranes normal, but there was serous effusion on the surface, in the ventricles, and at the base, to the extent of four ounces.

Chest.—Lungs and heart normal. The pericardial sac contained about two ounces of pale serum.

Abdomen.—The left lobe of the liver normal in structure, but greatly enlarged, extending into the left hypochondrium. In the right lobe there was a very large abscess, containing about three pints of thick pus; peritoneal surfaces all healthy, but the coats of the colon were much thickened, and the gut itself contracted. Other viscera healthy.

Case 24.—Hepatitis.—Thomas Hewett, a pauper, 37 years of age, was admitted on the 19th of December with severe hepatitis. He said he had been ill nearly a month, and had been under the care of a Portuguese practitioner at Mahim. There was considerable fulness in the right hypochondrium, and great emaciation; his skin was dry, and above the natural temperature; his pulse 120, small and feeble; tongue coated down the centre, but moist; bowels irritable; there was evidently an hepatic abscess. He took nitric acid and opium. By the 24th there was distinct fluctuation in one spot, about three quarters of an inch below the margin of the ribs. I introduced a lancet and gave exit to some ounces of pus. A probe entered very readily to the depth of four inches. He felt much relieved for a day or two,

and the discharge became very slight; but he gradually sunk, and died on January 3rd.

Inspection eighteen hours after death.—Chest.—Viscera healthy.

Abdomen.—In the right lobe of the liver there was the cavity of a large abscess, containing very little purulent matter, and communicating with the incision which had been made. Adhesive inflammation had taken place between the surface of the liver and the abdominal parietes at the spot which had been opened; thus none of the contents of the abscess had escaped into the peritoneal sac. The liver was considerably enlarged, and the gall bladder greatly distended; the mucous lining of the large intestines was dotted with small patches of ulceration. Other viscera healthy.

Case 25.—Cholera Epidemica.—George Smith, seaman, 26 years of age, was brought to Hospital at 7 P. M. of July 4th from a lodging house. He stated, on admission, that the preceding evening he had taken a dose of salts, and that soon afterwards he was seized with purging and vomiting, which had continued ever since; and that spasms came on about 2 P. M. His pulse was distinct, though small; skin clammy; and stools serous and like conjee. He was treated with calomel, ammonia, warm external applications, frictions, soda water and cold water *ad libitum*, and brandy in sago. Within two hours he was completely collapsed, and died at 4 A. M. the following morning.

Inspection four hours after death.—Thorax.—Viscera healthy, but congested.

Abdomen.—Liver much congested, and the gall bladder filled with bile of an inky appearance. Other viscera healthy.

Case 26.—Cholera Epidemica.—Robert McLarren, a pauper, 32 years of age, was admitted on June 3rd with syphilitic rheumatism, and was recovering. During the night of July 8th, however, he was attacked with cholera, and died at 10 P. M. of the 10th.

Inspection nine hours after death.—Head.—Vessels on the surface of the brain much congested, and about three ounces of serum effused at the base.

Thorax.—Viscera healthy, but congested.

Abdomen.—Liver straw-coloured and indurated. Other viscera healthy.

Case 27.—Epidemic Cholera.—William Adamson, seaman of the ship *Monarch*, 39 years of age, was admitted on July 31st, at 9 A. M., with cholera. He stated that he had gone to bed the preceding night in his usual health and continued so till 5 A. M. of the morning of his admission, when he was suddenly seized with vomiting and purging, and soon after with spasms in the lower extremities. On admission his skin was of a livid colour, cold and clammy; pulse very small and frequent. He took calomel and ammonia; had a mustard cataplasm over the abdomen, and hot bricks were placed round his trunk and extremities. He had soda water and cold water *ad libitum*. He appeared to improve for a time, the pulse rising, and the surface becoming less cold; but at thirty minutes past noon he was seized with dyspnæa, became almost immediately insensible, and died in ten minutes.

Inspection four hours after death.—Head.—Vessels on the surface of the brain much congested, and effusion of serum to the extent of four ounces.

Chest.—Viscera normal.

Abdomen.—Gall bladder distended with dark-colored bile; viscera normal.

Case 28.—Epidemic Cholera.—Henry Cole, seaman of the H. C. S. F. *Semiramis*, 28 years of age, was brought to Hospital by some of his shipmates from a drinking house, at 10 P. M. of August 22nd, in a state of collapse from cholera. Was first seized with purging early in the morning, and it continued all day; vomiting commenced four hours previous to admission, at which time the spasms in the lower extremities were very severe. The whole surface was bathed in a cold, clammy sweat; there was no pulse at the wrist; and the countenance was livid and sunken. Died at 1 A. M. of the 23rd, three hours after admission.

Inspection seven hours after death.—Thorax.—With the exception of some old adhesions of both pleuræ, the viscera quite healthy.

Abdomen.—Liver normal in size, but much congested, and bled profusely on section; vessels of the small intestines highly injected; other viscera healthy.

Case 29.—Epidemic Cholera.—Thomas Bryant, quarter master of the H. C. receiving ship *Hastings,* 42 years of age, was admitted with cholera at 6 p. m. on September 11th, having been attacked some hours previously; the precise time could not be ascertained, but according to the man's own statement it was about noon. On admission his skin was cold, clammy, and bathed in profuse perspiration; the countenance sunken; the pulse certainly distinct, but exceedingly small; and there were severe spasms in the lower extremities. He vomited and was purged immediately after admission, the dejections consisting of clear watery fluid. He took calomel, ammonia, and brandy, and cold water and soda water *ad libitum.* He had a mustard cataplasm over the abdomen, and hot bricks to every part of the body. Died at 4 p. m. the following day.

Inspection sixteen hours after death.—Thorax.—The viscera healthy, but there were some old adhesions of the pleuræ.

Abdomen.—Vessels of the stomach and small intestines highly injected, and the gall bladder distended with bile. No further abnormal appearances.

Case 30.—Epidemic Cholera.—Hugh Ferns, a constable in the Police Department, 30 years of age, was admitted at 6 p. m. of September 13th with cholera. He stated that not feeling well in the morning, he had taken a dose of salts and senna, which operated four times. About 5 p. m. he was seized with vomiting, purging, and cramps in the lower extremities. On admission he was much exhausted, countenance sunken, surface cold and clammy, pulse exceedingly feeble, though distinctly perceptible, and severe spasms in the lower extremities. He vomited and was purged immediately after admission. He took calomel, ammonia, and brandy, and had frictions and hot bricks to the whole of the body. He was allowed cold water *ad libitum,* but did not suffer much from thirst; he had a mustard cataplasm over the abdomen; within two hours he was completely collapsed, and remained so till 4 a. m. of the following day, when he suddenly burst into a violent struggle with the attendants, and almost instantly expired.

Inspection ten hours after death.—The whole surface of the body shrunken and livid.

Head.—Great congestion of the membranes and substance of the brain, and a small quantity of bloody serum in both lateral ventricles.

Chest.—Lungs much congested throughout, black fluid blood pouring out on cutting into the substance. The right cavities of the heart filled with blood of the same appearance; and there was also a small quantity in the left ventricle.

Abdomen.—Peritoneal coat of the small and large intestines much congested; the stomach distended with colourless fluid of the description he had been rejecting; the inner surface congested throughout; liver normal in size, but much congested, bleeding profusely when cut into; gall bladder distended. Other viscera healthy.

Case 31.—Epidemic Cholera.—Francis Delaney, a pauper, 37 years of age, was brought to the Hospital from the Prince Albert Tavern, about 4 A. M. of September 24th, with cholera. He stated that he had been suddenly attacked with vomiting and purging the preceding afternoon, between 5 and 6 o'clock, and that he had suffered from spasms in the legs throughout the night. On admission his surface was cold, but dry; hands corrugated; pulse distinct, but very small and frequent; voice feeble; countenance sunken and livid; and thirst urgent. He took calomel, ammonia, sago with port wine, and cold water and soda water *ad libitum*. A mustard cataplasm was applied over the abdomen, hot bricks to the whole body, and friction. He improved for a time, the skin becoming warm, and the pulse acquiring some power; but at 10 A. M. he was suddenly seized with delirium, sprung out of bed, and attempted to strike one of the ward boys in attendance; but in the attempt he fell back exhausted, and almost instantly expired.

Inspection six hours after death.—Head.—Vessels on the surface of the brain highly injected, and serous effusion to considerable extent on the surface, in the ventricles, and at the base. Black viscid blood filled the arteries at the base of the brain.

Thorax.—Lungs gorged with black, treacly-looking blood; the left ventricle of the heart was also filled with it.

Abdomen.—Liver slightly enlarged, and rather pale; stomach distended with clear serous fluid; other viscera healthy.

Case 32.—Epidemic Cholera.—Henry Stokes, an apprentice in the barque *Indian*, 20 years of age, was admitted with cholera on December 23rd, having been seized with purging forty-eight hours previously, and vomiting twenty-four hours. His voice was feeble, his countenance sunken, skin cold, and pulse just perceptible. He took calomel, ammonia, and brandy ; had hot bricks round the entire surface of the body, mustard cataplasms to the epigastrium ; and was allowed as much soda-water and cold water as he wished for. The purging and vomiting continued for five hours after admission, when they subsided, and for a time he appeared to do well ; but the secretions did not become fully re-established ; cerebral symptoms supervened ; and he died on the 5th of January.

Inspection three hours after death.—Head.—Great congestion over the entire surface of the brain, and slight sanguineous effusion at the base.

Chest.—The right lung filled its cavity, and was congested ; the left was collapsed ; the cavities of the left side of the heart, as well as of the right, filled with thickish black blood.

Abdomen.—Liver normal in size and structure, but greatly congested ; gall bladder enormously distended, and lighter-colored than usual ; mucous lining of the stomach of a dark purplish color throughout ; other viscera healthy.

Case 33.—Epidemic Cholera.—John Almond, seaman in the barque *Bengalee*, 35 years of age, was admitted on December 24th with cholera, having been attacked on board seven hours previous to admission. He was completely collapsed ; had severe spasms ; had been frequently purged ; and was constantly vomiting. His countenance was sunken, and his very tongue cold as well as purple. He took calomel, ammonia, arrowroot and brandy ; and had cold water and soda water *ad libitum*. Hot bricks were placed round his body and extremities, and friction was kept up. He had also mustard cataplasms to the epigastrium. Sunk, and died fourteen hours after admission.

Inspection three hours after death.—Head.—Dura mater much injected, and on removing the membranes a small quantity of sanguineo-serous fluid escaped from the surface of the brain.

There was effusion of the same character also at the base, to the extent of about three ounces.

Chest.—Lungs partially collapsed; heart normal, but the left auricle and ventricle, as well as the right, filled with dark, thick blood.

Abdomen.—Liver healthy; gall bladder distended with a dark viscid fluid; mucous lining of the stomach covered to a great extent with minute red spots; intestines healthy, but pale.

Case 34.—Epidemic Cholera.—Thomas Clarke, boatswain of the ship *Joseph Bushby*, 26 years of age, was admitted on the 3rd of January, at 3 p. m., from the Police Office, with cholera. He said he came ashore early in the morning in perfect health, to attend at the Police Office, and continued well till 10 a. m., when he was seized with purging, and soon afterwards with vomiting; both had continued ever since, and with spasms in the lower extremities. On admission his surface was cold and damp, eyes sunken, and pulse scarcely perceptible. He took calomel, ammonia, and brandy; had a mustard cataplasm to the epigastrium, hot bricks to the surface, and soda water and cold water *ad libitum*. Within an hour he was completely collapsed; and died the following day, twenty-six hours after admission.

Inspection fifteen hours after death.—Head.—Considerable congestion over the surface of the brain, and the vessels all filled with thickish black blood.

Chest.—Lungs gorged with black blood; heart normal in structure, but weighed thirteen ounces.

Abdomen.—Liver normal, but gorged with black thickish blood, bleeding freely when cut into; stomach distended with the same description of conjee-like fluid which he had been vomiting; and its mucous lining was studded with circumscribed vascular spots here and there. Other viscera normal, but congested.

Case 35.—Epidemic Cholera.—Sophia Martin, widow of a military pensioner, 45 years of age, was admitted at 3 p. m. on January 18th, with cholera, having been attacked six hours previously. On admission she was perfectly collapsed, and incapable of articulating. She neither vomited nor was purged after admission, but continued cold, pulseless, and collapsed till midnight, when she died.

Inspection eight hours after death.—Head.—Considerable congestion over the surface of the brain.

Chest.—Viscera healthy, but gorged with thick black blood; the left cavities of the heart were filled with it, as well as the right.

Abdomen.—Liver normal in size and structure, but bleeding freely on making an incision, the blood, as elsewhere, being thick and black; the mucous lining of the stomach studded with small congested spots; other viscera healthy.

Case 36.—Epidemic Cholera.—William Rees, a clerk in one of the public offices, 33 years of age, was admitted at 3 A. M. on January 19th, with cholera. He had been seized with purging the preceding evening at 7 P. M., and soon after with vomiting and severe spasms, all of which had continued ever since. He was pulseless and cold, but not clammy; his voice feeble, and his countenance sunken. He took calomel, ammonia, and brandy, had mustard cataplasms to the epigastrium, hot bricks to the surface, and water *ad libitum*. He only vomited once after admission, but sunk gradually, and died at 4 P. M.

Inspection sixteen hours after death.—Head.—Great congestion over the entire surface of the brain, and slight serous effusion at the base.

Chest.—Heart and lungs loaded with black blood, the left cavities of the former filled equally with the right.

Abdomen.—Liver normal in size and structure, but gorged with black blood; the peritoneal surfaces of the small intestines much congested, but the mucous lining somewhat pale; the mucous lining of the stomach also paler than usual; other viscera healthy.

Case 37.—Epidemic Cholera.—James Cornwall, cook in the ship *Caledonia*, 34 years of age, was admitted in the collapsed stage of cholera at 7 A. M. on February 9th, having been seized with purging nine hours previously, on board ship. He had afterwards vomited, but only once, and became collapsed rapidly. He was then sent to Hospital. Calomel, stimulants, friction, and external warmth were employed, but without benefit. He remained completely collapsed, neither vomited nor was purged; and died two hours after admission.

Inspection six hours after death.—Head.—Considerable congestion over the surface of the brain.

Chest.—Viscera normal, but much congested with dark black semi-coagulated blood.

Abdomen.—Viscera healthy.

Case 38.—Epidemic Cholera.—Michael Farley, a pauper, 32 years of age, was brought to Hospital at 6 p. m. on the 9th of March, with a severe attack of cholera, having been attacked nine hours previously. His whole surface was cold and clammy, there was great restlessness, a fluttering pulse, frequent vomiting and purging, and severe cramps. He took calomel and ammonia; had mustard cataplasms to the abdomen, and hot bricks were applied to the surface. He rapidly became perfectly collapsed, and died within three hours.

Inspection eleven hours after death.—Head.—Between the dura mater and arachnoid there was a very large quantity of serum effused; the brain itself was normal, with the exception of a few bloody points in its medullary substance.

Chest.—Lungs healthy, but gorged with thick, treacle-like blood; heart normal, but contained blood of the same character in both sides.

Abdomen.—Stomach healthy, excepting a slight dusky appearance of the mucous membrane towards its pyloric extremity. Other viscera healthy.

Case 39.—Epidemic Cholera.—John Clough, butcher in the Peninsular and Oriental Company's steamer *Braganza*, 35 years of age, was admitted with cholera on March 21st, at 1h. 30m. p. m. He had been suffering several days from diarrhœa, and about 6 p. m. on the 20th was seized with vomiting, and soon afterwards with cramps. On admission his surface was cold and clammy, his eyes sunken, and his pulse small and feeble. He took calomel, ammonia, and an emetic of sulphate of zinc, and had hot bricks applied to the surface. No improvement taking place within an hour, he was bled, and sixteen ounces of blood were taken with some difficulty. Ten minims of chloroform were given occasionally when the cramps were severe; and he took soda water, wine, and sago. Vomited only once after admission, and was not purged at all. He appeared to improve for a

time, but 22 hours after admission he had general convulsions, and died in a few minutes.

Inspection six hours after death.—Head.—Brain healthy; about two ounces of serum between the arachnoid and dura mater.

Chest.—Left lung closely adherent by its pleura to the ribs; its parenchyma, to a considerable extent, was much indurated; the remaining portion was gorged with thick black blood; both sides of the heart filled with thick black blood.

Abdomen.—Liver large, and rather paler than natural; stomach distended with conjee-like fluid; its mucous membrane pale, except towards its pyloric orifice, where there were small congested patches; mucous membrane of the intestines pale, and somewhat distended with fluid.

Case 40.—Scorbutus.—Walter Fitzsimons, steward of the ship *General Sale*, 37 years of age, was admitted on the 29th of October, in a state of extreme emaciation and exhaustion from scurvy. His ship arrived the previous day, after a passage of five months from Liverpool. His gums were swollen and spongy, and the trunk, as well as the extremities, covered with large purple blotches; his weakness was so excessive that he could scarcely turn in bed. He took the carbonate of potash in creat, and was put on a nourishing diet, including fresh vegetables, potatoes, lime-juice, and beer. No improvement took place, and he died suddenly on November 3rd.

Inspection nine hours after death.—Head.—The dura mater, at one part, was of a livid color, apparently the effect of the scorbutic diathesis; the vessels on the surface of the brain were slightly injected; and there was some serous effusion at the base, but the organ itself was perfectly normal.

Chest.—Viscera healthy.

Abdomen.—The peritoneal cavity contained a small quantity of serum of a brownish color; the viscera themselves all normal.

Case 41.—Delirium Tremens.—William Prankard, gunner of the H. C. S. F. *Semiramis*, 38 years of age, was admitted on August 19th, at 9 A. M., in an advanced stage of delirium tremens, with which he had been attacked two days previously on board the frigate. On admission he was in a very exhausted

condition; his whole surface was bathed in a cold, clammy sweat, and his pulse was imperceptible. He was muttering inarticulately, and at times struggled feebly; his pupils were contracted. Brandy was given, cold applied to the head, and warmth to the extremities. Died at 2h. 30m. P. M. the same day.

Inspection three hours and a half after death.—Head.—Vessels on the surface of the brain much congested; there was serous effusion at the base to the extent of four ounces, and there was also considerable effusion in the ventricles.

Thorax.—Viscera healthy.

Abdomen.—Liver much enlarged, extending into the left hypochondrium, and as far down as the umbilicus; very pale in color. Other viscera healthy.

Case 42.—DELIRIUM TREMENS.—Thomas Hall, boiler-maker in the Dock Yard, 27 years of age, was admitted at 9 A. M. on October 5th with delirium tremens. He was said to have been delirious all night. On admission he was much excited, tremulous, restless, and talking incoherently, though answering questions rationally; his surface was hot and dry, and his pulse frequent. He took antimony and tincture of morphia, and had the cold douche. He continued much in the same state till half an hour past noon, when he was observed by the ward boy in attendance to fall suddenly. On being raised he was found to be insensible, and died in ten minutes.

Inspection three hours and a half after death.—Head.—Vessels on the surface of the brain much injected, and considerable sub-arachnoid serous effusion; there was also serous effusion in the lateral ventricles, and about three ounces at the base of the brain.

Chest.—Viscera normal.

Abdomen.—Viscera normal.

Case 43.—DELIRIUM TREMENS.—Charlotte Foghill, the wife of a private in the Garrison Band, 28 years of age, was admitted at 9 A. M. of the 6th of October in the first stage of delirium tremens. She was said to have been drinking hard for some days. She was tremulous; had had little or no sleep during the preceding four days and nights; her pulse was frequent and small; her surface of its natural temperature, and her stomach very irri-

table, having vomited several times. Her bowels were confined, and she had pain on pressure at the epigastrium. She took one dose of calomel and opium, and afterwards effervescing draughts, with the tincture of opium in small doses; she had also a mustard cataplasm over the epigastric region. She became a good deal excited during the following night, and her stomach continued very irritable. The next morning her surface was cold and clammy, her pulse rapid and very feeble, and her breathing hurried; but she was perfectly rational when spoken to. She took repeated doses of spiritus ammoniæ arom. and brandy, and small doses of laudanum. She again became troublesome and excited during the night of the 7th; and died on the 8th.

Inspection six hours after death.—Head.—The arachnoid thickened, and partially opaque nearly throughout its whole extent; vessels on the surface of the brain greatly injected; slight serous effusion in the lateral ventricles, and between two and three ounces at the base.

Chest.—Both lungs much injected; heart normal; no effusion in the pericardial sac.

Abdomen.—Lining membrane of the stomach unusually pale, with the exception of one or two small patches of congestion near the pyloric orifice; liver normal in size, slightly granular, and much congested; slight congestion of the small intestines generally; other viscera healthy.

Case 44.—Delirium Tremens.—Mary Ann Stanley, 31 years of age, and 15 years resident in India, of a broken-down constitution, the result of a long course of debauchery and intemperance, was admitted on December 26th with delirium tremens, accompanied with great irritability of stomach, a small rapid feeble pulse, and a dry coated tongue. She took ammonia, brandy, camphor, and opium; but did not improve. At 7 P. M. the following day, she suddenly lost the power of speaking, pointed to the region of her heart, and almost instantly expired.

Inspection twelve hours after death.—Head.—Brain and membranes normal; about two ounces of pale serum at the base.

Chest.—Lungs normal; heart of its natural size and structure; the left auricle and ventricle contained layers of thin, pale, yellowish fibrin, attached to the muscular fibres, but easily detached.

There was slight induration in the aortic valves. No other abnormal appearance.

Abdomen.—Liver slightly enlarged and granular; other viscera normal.

Case 45.—Ebrietas.—George Munn, a gunner on the pension list, 41 years of age, was brought to the Hospital on August 11th, at 10 A. M., with a note from the Master of the Sailor's Home, containing the following statement:—"Came to board at the Home last night. He was under the influence of liquor, but he was well through the night, and had his breakfast this morning. He was out since, and had, I dare say, something to drink; but one of the men of the Home saw him drink something out of the accompanying bottle. I found him speechless, and black in the face; and have thought it advisable to send him off to the Hospital at once." The bottle referred to was a four ounce phial, three parts full, the contents appearing to consist of essence of peppermint and laudanum. On admission he was perfectly insensible, his breathing stertorous, and countenance livid. His surface was of the natural temperature; his pulse full and hard, and pupils contracted and insensible to the stimulus of light. The stomach was emptied of its contents immediately by means of the syringe; the smell of opium could not be detected in the matter brought up. The stomach was afterwards injected twice with coffee; he was bled from the arm, and every possible means used to arouse him, including the use of the cold douche and turpentine enemas. At 4 P. M. he rallied considerably, and answered all questions put to him. He stated that he had been drinking hard for several days, and that he was so drunk on the morning of his admission that he was unable to say whether he had swallowed any of the contents of the bottle sent with him or not. He continued to improve till 4h. 45m. P. M., when he was suddenly seized with faintness, and expired in a few minutes.

Inspection eighteen hours after death.—Head.—Vessels on the entire surface of the brain much injected, and effusion of serum at the base, to the extent of between two and three ounces.

Thorax.—Viscera healthy.

Abdomen.—Viscera healthy; the stomach contained some

brown fluid, apparently coffee, and some undigested animal food; no smell of opium in its contents.

An inquest was held on the body, and the jury returned a verdict of "Death from apoplexy, caused by excessive drinking."

Case 46.—Aneurism of the Arteria Innominata.—Vincent Jacob, seaman of the ship *Syria*, 37 years of age, was admitted on the 2nd of June, with symptoms of bronchitis, from which he said he had been suffering several months. He had cough and frothy mucoid expectoration; skin, pulse, and tongue natural, and bowels regular. Towards the end of July the sputa became distinctly purulent, the pulse frequently rose to 96, and he began to lose strength and flesh rapidly. After a month's time, however, the sputa became chiefly mucoid, and the symptoms less severe and urgent. In this state he continued till October 23rd, when about 6 A. M. the Hospital Serjeant heard a noise as if some one had suddenly fallen upon the floor; and on entering the ward he found the patient lying on the ground by his bed-side, blood streaming from his mouth and nose. In a few seconds he expired, after bringing up about two pints and a half of bright scarlet blood.

Inspection nine hours and a half after death.—Thorax.—Some difficulty was experienced in raising the sternum and costal cartilages, from the existence of numerous firm pleural adhesions. On exposing the contents of the thoracic cavity, the viscera seemed entirely to fill it, both lungs being distended, and filling their respective cavities; the right lung was infiltrated with a sanguineo-serous fluid, which poured out copiously on making an incision; the upper lobe of the left lung contained a cavity, and there were several patches of tubercular deposit; the lower portion of the inferior lobe was normal in structure, but infiltrated like the right lung. On examining the large vessels of the heart, an aneurism of the arteria innominata was found; the sac was firmly adherent to all the adjacent parts, particularly to the fore part of the trachea, into which the aneurism had burst about an inch and a half above its bifurcation. The heart itself was normal, both in size and structure.*

* The dissection in this case was made by Assistant Surgeon Browne, M. D., who forwarded to the Museum of the Grant Medical College a very interesting pre-

Case 47.—Phthisis Pulmonalis.—James Hunter, a pauper, 29 years of age, after being in bad health for some months, was admitted with phthisis pulmonalis on 27th of March, and died on 16th June.

Inspection eight hours after death.—Chest.—Both lungs extensively diseased; a small portion only of the left lung seemed capable of carrying on respiration; both lungs contained large vomicœ, and were thickly studded with tubercles.

Abdomen.—Viscera healthy.

Case 48.—Phthisis Pulmonalis.—Henry Careman, seaman in the ship *Ferozepoor*, lately arrived from England, 26 years of age, was admitted on June 3rd in an advanced stage of phthisis pulmonalis, and greatly emaciated. His cough was harassing; he was expectorating thick, globular, purulent sputa; sweated profusely at night; and his pulse was 100; took morphia, hyoscyamus, &c. He gradually sunk, and died on the 28th July.

Inspection eight hours after death.—Thorax.—Left lung consolidated and diseased throughout, being thickly studded with tuberculous deposit; it also contained several vomicæ. The right lung was also consolidated throughout, with the exception of two small portions, one in the superior, the other in the inferior lobe. There were no vomicæ in the right lung.

Abdomen.—Viscera healthy.

Case 49.—Phthisis Pulmonalis.—George Meldrum, seaman in the H. C. S. *Berenice*, 33 years of age, was admitted on July 8th with phthisis pulmonalis in an advanced stage, and died on August 4th.

Inspection three hours after death.—Thorax.—The left lung extensively diseased, a small portion of the inferior lobe being alone healthy. The other portion was thickly studded with tuberculous deposit, and contained several cavities. The upper

paration, showing the aneurismal sac and its connection with the trachea. I may take this opportunity of mentioning that a considerable number of the *post mortem* examinations of the year was made by this Officer, who on all occasions, while Assistant Surgeon of this Hospital, showed the greatest anxiety to investigate the morbid changes produced by disease in the fatal cases which were immediately under his charge.

and lower lobes of the right lung were nearly healthy ; middle lobe consolidated, containing much tuberculous deposit, a portion being in a softened condition.

Abdomen.—Viscera healthy.

Case 50.—Phthisis Pulmonalis.—William Davis, seaman of the H. C. S. F. *Semiramis*, 21 years of age, was admitted on July 11th with phthisis pulmonalis in an advanced stage. Cough severe; sputa thick, purulent, and globular ; night sweats profuse; bowels irritable. Died on October 6th.

Inspection twelve hours after death.—Body greatly emaciated.

Thorax.—Both lungs extensively diseased; the right one adherent anteriorly to the thoracic parietes, and contained one very large cavity, the walls of which were partly formed by the costal parietes. Left lung nearly consolidated throughout from tubercular deposit, a small portion of the inferior lobe alone remaining pervious. The air cells and tubes of the both lungs were infiltrated with a frothy, muco-serous fluid; serous effusion in the pericardial sac.

Abdomen.—Viscera healthy.

Case 51.—Phthisis Pulmonalis.—Thomas Sellers, draftsman in the Military Board, 35 years of age, was admitted on the 25th September in the last stage of phthisis pulmonalis and died the following day.

Inspection nine hours after death.—Body greatly emaciated.

Thorax.—Both lungs extensively diseased; the two superior lobes of the right were consolidated, consisting almost entirely of tuberculous deposit. The inferior lobe was less consolidated, but also contained tubercles. The left lung was firmly adherent to the costal parietes, was diseased throughout, and contained several large vomicœ; heart healthy.

Abdomen.—The viscera appeared healthy, with the exception of the colon, which had that pale, bloodless appearance which it usually presents after long-continued diarrhœa.

Case 52.—Diarrhœa.—Ann Carrick, 37 years of age, who had been leading a life of debauchery for some time, was admitted in a very emaciated state on July 9th with diarrhœa, attended by great irritability of stomach, the result of a long course of intemperate habits. She took opium in different forms,

effervescing draughts, ammonia, port wine, brandy, &c., but gradually sunk, and died on the 31st.

Inspection four hours after death.—Thorax.—Viscera healthy.

Abdomen.—Liver slightly enlarged, of a pale colour, and granular; lining membrane of the cœcum injected, and marked here and there with cicatrices of ulcers. Other viscera normal.

Case 53.—Diarrhœa.—Elizabeth Harvey, a woman on the pension list, 64 years of age, after leading a life of intemperance for many years, was finally admitted on July 16th, in an extremely emaciated state, with diarrhœa of long standing. She gradually sunk, and died on the 25th, nine days after admission.

Inspection five hours after death.—Chest.—Viscera normal.

Abdomen.—Liver normal in size, but granular, and of a nutmeg colour; coats of the small intestines somewhat thickened. Other viscera healthy.

Case 54.—Diarrhœa.—John Jones, a pensioned serjeant, 47 years of age, who had been repeatedly in Hospital with delirium tremens and other diseases resulting from a long course of intemperance, was finally admitted at 8 p. m. on the 23rd of January. He stated that he had been very much purged during the preceding nine or ten days, particularly during the last three. He said he had been upwards of a dozen times to stool the day of admission; his motions being serous and brownish. He had no straining or griping, but was greatly exhausted; his pulse rapid, small and feeble; his surface cold; and his tongue dry and covered with a thick yellow fur. He took opium, ammonia, and brandy, but sunk rapidly; and died twenty-two hours after admission.

Inspection fourteen hours after death.—Chest.—Old pleural adhesions on both sides; but the viscera healthy.

Abdomen.—Liver slightly enlarged, and of a nutmeg colour; the coats of the intestines somewhat thickened, and their mucous lining, as well as the mucous lining of the stomach, unusually pale. Other viscera normal.

Case 55.—Cephalalgia.—Henry Simmons, seaman in the ship *Ganges*, 24 years of age, was admitted on April 24th, complaining merely of head-ache; but he was in a very weak, emaciated state, and seemed incapable of giving any distinct account

of his ailments, beyond the fact of his having been in bad health for some four months. His pulse was 68, and soft; his tongue red and smooth. He took quinine, and had cold applications to the head. Towards the end of the month he became somewhat confused in answering questions; he then took small doses of calomel, and was blistered. No improvement, however, took place; and he died on May the 12th.

Inspection fourteen hours after death.—Head.—On removing the calvarium, the vessels of the dura mater were found injected, and there were adhesions between it and the surface of the brain. The ventricles contained three ounces of pale serum, and there was a small quantity at the base. The brain itself was partially softened.

Chest.—Lungs and heart normal; slight effusion of serum into the sac of the pericardium.

Abdomen.—Liver slightly enlarged and congested. Other viscera healthy.

Case 56.—Apoplexy.—John Toner, a gunner on the pension list, 57 years of age, was brought to the Hospital on June 13th at 7 A. M. in a state of perfect coma. He was brought by a Native woman, who said he had been boarding at her house for a long time. On the 7th of June he received his monthly pension, and had been drinking hard since; but on the day preceding that of his admission he was said to have been sober. On going into his room on the morning of the 13th the woman found him in a state of insensibility, and brought him to Hospital. His pupils were of their natural size, but were insensible to the stimulus of light. There was no stertor in breathing. His surface was becoming cold; and he died two hours after admission.

Inspection eight hours after death.—Head.—General congestion in the vessels of the entire upper surface of the brain. Slight extravasation on the lower surface of the anterior lobe of the right side. Firm adhesion, at several points, between the dura mater and the brain; and the substance at these points so much softened that in reflecting the dura mater a portion of the brain adhered to it. Both lateral ventricles were enormously distended with the largest clots of blood I ever saw in this situation. The two clots weighed four ounces and a quarter, the one in the right

ventricle being much the larger of the two. The walls and floors of both ventricles were much softened, in some portions being scarcely firmer than curdled milk. There were about four ounces of bloody serum at the base of the brain.

Chest.—Viscera normal.

Abdomen.—Viscera normal.

Case 57.—Anasarca.—Peter Morris, a clerk in one of the public offices, born in India, 23 years of age, of a scrofulous and broken-down constitution, and who had previously been a long time in hospital with secondary syphilis, was again admitted on the 18th November in a very weak, emaciated condition, and with œdema to great extent in the lower extremities, but without any evidence of visceral disease. He took iron, digitalis, alteratives, quinine, &c. but without improvement, and gradually sunk, and died the 28th December.

Inspection eighteen hours after death.—Chest.—Lungs and heart normal. There were about eight ounces of pale serum in the pericardial sac.

Abdomen.—Viscera all healthy; the coats of the stomach and intestines, however, were unusually pale.

Case 58.—Obstipatio.—Joseph Henry, seaman of the ship *Sovereign*, 27 years of age, was admitted on 3rd July, with a severe attack of acute dysentery, but was discharged quite well on the 30th. He was re-admitted on August 3rd, suffering from severe pain in the abdomen, which came on the preceding evening, after having eaten a quantity of fruit and hard-boiled eggs. His bowels had not been open since he had been taken ill; his surface was cold and pulse feeble; he took castor oil, and had a purgative enema. His bowels were not acted on, and he took a succession of purgative medicines, but without gaining the object in view. The pain in the abdomen increased, particularly over the cœcum in the right iliac fossa, where there soon arose considerable fulness and tension. Leeches were applied freely, enemas were continued, and castor oil given, but without effect. The tension and fulness gradually increased; hiccup supervened; his pulse rose to 140; his surface became cold and clammy, tongue coated and dry, and countenance exceedingly anxious. The bowels were not moved; vomiting succeeded, and became

almost constant; his breathing very hurried; and he sunk, and died on the 9th.

Inspection nine hours after death.—Abdomen.—On opening the cavity of the abdomen, the intestines were found greatly distended by flatus, and by a large accumulation of fluid, pale-yellow, feculent matter. The cœcum rose high out of the iliac fossa, was of a dark livid color, in a sphacelated condition, and broke down under the slightest touch. On examination, a stricture was found to exist, being formed by what appeared to be a preternatural band of peritoneum stretching across the head of the cœcum, binding it down firmly in the right iliac fossa, and causing total obstruction of the gut. The gall-bladder was enormously distended, and weighed five ounces.

Thorax.—Viscera healthy.

Case 59.—Syphilis Consecutiva.—James Gilmore, seaman of the H. C. receiving ship *Hastings*, 32 years of age, was admitted on the 26th July, with secondary syphilis, having been treated during the preceding three months on board the *Hastings* and at Butcher's Island. On admission, he was in a state of ptyalism from mercury, and he was blanched, sallow, and greatly emaciated. He suffered from pain in nearly all his joints and limbs, increased at night, but complained chiefly of great debility. His bowels were regular. He took iodyne, and was put on a nutritive diet. He improved somewhat for a month, but on August 26th he complained of having been purged several times during the preceding night. His motions were fluid, and passed without the least straining. He took opiates in chalk mixture, but without improvement. He then took opium and preparations of iron, but also without improvement. His stomach then became irritable, his pulse rapid and feeble, his skin dry and still more blanched; his lips became covered with black sordes; and he died on September 1st.

Inspection five hours after death.—Chest.—Lungs healthy; heart somewhat hypertrophied, and weighed thirteen ounces; slight serous effusion into the sac of the pericardium.

Abdomen.—Viscera pale and bloodless; the lining membrane of the colon ulcerated here and there. Other viscera healthy.

Case 60.—Ambustio.—John Williams, seaman of the ship

Bombay, 35 years of age, was admitted on December 26th, with a severe burn. The whole of the right side, from the shoulder to the hip, was severely burnt. Several large patches, the size of the hand, were completely denuded of cuticle. He said he had been so drunk that he did not know how the accident occurred. He did well till the 5th of January, when symptoms of tetanus supervened. He then took calomel and morphia, the latter in full doses; and he had purgative enemas. The following day he was worse; and the spasms, which had been slight, and confined to the muscles of the jaw and neck, extended nearly to all the muscles of the body, and recurred at short intervals. He was then put completely under the influence of chloroform, and was kept so for two hours. During this period the spasms came on at longer intervals, and were much less severe; only five times, and each time lasting only a few seconds. The masseter and temporal muscles became perfectly relaxed, so that his mouth could be fully opened. For one hour after recovering consciousness the spasms recurred much less frequently than before the chloroform had been used; but after the expiration of an hour they recurred as frequently, and were just as severe, as previous to its use. He was again put under the influence of chloroform, and with the same results. His faculties remained unclouded; and he died the following day, the 7th.

Inspection eight hours after death.—Head.—Slight congestion in the membranes of the brain; and a small quantity of serum in the lateral ventricles, and at the base. Brain itself normal.

Chest.—Lungs slightly congested; heart normal.

Abdomen.—Viscera healthy.

Case 61.—Fracture of the Skull.—Nicholas Vulmutch, seaman in the ship *Sobraon*, 30 years of age, was brought to the Hospital at a quarter past 3 p. m. on the 12th of April, in a state of complete insensibility. It was stated that while at work he fell into the ship's hold, and received the force of the fall upon the occipital and parietal bones. There was a large puffy swelling on the scalp at the part struck, and also a slight contused wound. His surface was cold, and rather clammy; and his pulse small, slow, and laboured. He groaned and struggled at times; and blood was trickling from the left ear. Ice was applied to the

head, and warmth to the lower extremities. He continued in a comatose state, from which he could not be roused in the least by speaking in the loudest tone. Reaction took place in about two hours, the pulse becoming full and hard. He was bled to the extent of twenty ounces, and his pulse became softer; but two hours and a half after admission he was suddenly seized with a severe rigor, and died almost immediately.

Inspection fourteen hours after death.—Head.—Upon dividing the scalp, and reflecting the posterior portion over the part where the blow was received, a large clot of blood was exposed lying upon the bone, corresponding in extent with the swelling on the scalp on admission, and which had gradually increased to the moment of his death. On removing the clot, and exposing the surface of the bone, several fissures were seen, running in different directions through the parietal and occipital bones; and one terminated in the foramen magnum. There was no displacement. On removing the calvarium, about an ounce and a half of sanguineo-serous fluid escaped; and on reflecting the dura mater a clot of blood was found to envelope nearly the whole surface of the brain, the vessels of which were very much injected.

32. In concluding my Report, I must beg to be allowed to place on record the high opinion I have formed of the professional character and attainments of Assistant Surgeon W. C. Browne, M. D., who, after holding the appointment of Assistant Surgeon to this Hospital upwards of three years, was lately compelled by bad health to return to Europe. During the period mentioned, Dr. Browne invariably performed his duties with unremitting attention; and I cannot allow his connection with the Hospital to close without bearing this brief testimony to the value of his services.

Bombay, 1st April 1851.

Annual Return of Sick in the European General Hospital, from April 1st 1850 to March 31st 1851.

Class of Disease.	Diseases.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Fevers	Febris Ephemera	0	27	27	27	0	0
	„ Intermittens Tertiana	2	22	24	23	1	0
	„ „ Quotidiana	0	50	50	48	1	1
	„ Remittens	0	34	34	29	5	0
Eruptive Fevers.	Variola	0	4	4	3	1	0
	Varicella	0	1	1	1	0	0
Diseases of the Lungs.	Bronchitis Acuta	0	18	18	17	0	1
	„ Chronica	2	9	11	9	1	1
	Pneumonia	0	3	3	2	1	0
	Pleuritis	0	3	3	3	0	0
	Hœmoptysis	0	1	1	1	0	0
	Catarrhus Acutus	0	4	4	4	0	0
	Phthisis Pulmonalis	0	10	10	2	5	3
	Asthma	0	2	2	1	0	1
Diseases of the Liver.	Hepatitis Acuta	1	30	31	23	4	4
	„ Chronica	0	11	11	9	0	2
Diseases of the Stomach and Bowels.	Peritonitis	0	2	2	2	0	0
	Gastritis	0	1	1	1	0	0
	Enteritis	1	0	1	1	0	0
	Hœmatemesis	0	1	1	1	0	0
	Dysenteria Acuta	5	60	65	48	15	2
	„ Chronica	2	11	13	8	3	2
	Dyspepsia	0	1	1	1	0	0
	Colica	0	7	7	7	0	0
	Diarrhœa	3	85	88	82	3	3
	Obstipatio	1	12	13	11	1	1
Epidemic.	Cholera	0	31	31	9	20	2
Diseases of the Brain.	Cephalalgia	2	15	17	16	1	0
	Apoplexia	0	2	2	0	1	1
	Paralysis	0	2	2	2	0	0
	Mania	0	4	4	4	0	0
	Delirium Tremens	1	44	45	38	5	0
	Epilepsia	0	3	3	3	0	2

Class of Disease.	Diseases.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Dropsies.	Anasarca	0	1	1	0	1	0
	Ascites	0	4	4	3	1	0
Rheumatic Affections.	Rheumatismus Acutus	0	27	27	26	0	1
	,, Chronicus	8	52	60	56	0	4
	Arthritis	0	2	2	2	0	0
Venereal Affections, and Diseases of the Genital Organs.	Syphilis Primitiva	2	46	48	45	0	3
	,, Consecutiva	9	43	52	48	1	3
	Ulcus Penis non-Syphilitica	0	1	1	1	0	0
	Bubo Simplex	3	19	22	21	0	1
	Gonorrhœa	1	29	30	29	0	1
	Orchitis	0	25	25	23	0	2
	Strictura Urethræ	0	5	5	5	0	0
	Phymosis	0	2	2	2	0	0
Abscesses and Ulcers.	Phlegmon et Abscessus	0	30	30	27	0	3
	Paronychia	0	6	6	6	0	0
	Ulcus	1	21	22	22	0	0
	Fistula in Ano	0	3	3	3	0	0
Wounds and Injuries.	Luxatio	1	5	6	6	0	0
	Subluxatio	0	4	4	4	0	0
	Vulnus Incisum	1	7	8	8	0	0
	Contusio	1	38	39	38	0	1
	Ambustio	0	4	4	2	1	1
	Fractura	0	11	11	10	1	1
	Concussio Cerebri	0	4	4	4	0	0
Diseases of the Eye.	Ophthalmia	3	14	17	17	0	0
Diseases of the Skin.	Scabies	0	1	1	1	0	0
	Psoriasis	0	1	1	1	0	0
Other Diseases.	Abortio	0	1	1	1	0	0
	Asphyxia	0	1	1	1	0	0
	Carcinoma	0	1	1	1	0	0
	Carditis	0	2	2	2	0	0
	Cynanche Parotidea	2	1	3	3	0	0
	,, Tonsillaris	0	3	3	3	0	0
	Dracunculus	0	3	3	3	0	0
	Ebrietas	1	34	35	32	1	2
	Epistaxis	0	2	2	2	0	0

Class of Disease.	Diseases.	Remained.	Admitted.	Total.	Discharged.	Died.	Remaining.
Other Diseases.	Hæmorrhois	0	8	8	8	0	0
	Hernia	0	2	2	2	0	0
	,, Strangulata	0	1	1	1	0	0
	Hypertrophy of Heart	0	2	2	1	1	0
	Laryngitis	0	1	1	1	0	0
	Leucorrhæa	0	1	1	1	0	0
	Menorrhagia	0	1	1	1	0	0
	Necrosis	0	1	1	0	0	1
	Nephritis	0	1	1	1	0	0
	Neuralgia	0	2	2	2	0	0
	Otitis	0	1	1	1	0	0
	Parturitio	0	6	6	6	0	0
	Scorbutus	1	66	67	59	1	7
	Scrophula	0	1	1	1	0	0
	Splenitis	0	2	2	2	0	0
	Tumores	0	2	2	2	0	0
	Varicocele	1	0	1	1	0	0
	Verrucæ	0	1	1	0	1	0
	Total	55	1062	1117	983	77	57

Article IV.

Notes on moving Troops. By F. S. Arnott, M. D.

Presented April 1851.

In moving troops, whether it be from one station to another, in the ordinary periodical reliefs, or to the scene of war, in a period of hostilities, the great object is to conduct them to their destination in as effective and healthy a state as possible, and with as little extra charge to the Government as is compatible with such efficiency. For effecting this purpose, the Regulations of the Service have made ample and comprehensive provisions, the details of which it devolves on medical officers in a great measure to carry out; and the more carefully and considerately this is done, so much the more will the health and energy of the troops be secured, and the State saved from extra and sometimes unnecessary expense.

In carrying out these details, according to the letter and spirit of the orders, whether on field service, or during the ordinary relief of troops, the duties, toils, and responsibilities of medical men increase in a greater ratio than those of any other class of officers, and the alacrity and cheerfulness with which they are encountered are extremely creditable to them. True it is, unfortunately, the medical man, in doing so, has sometimes to act under the most discouraging circumstances: he is liable to be controlled, and presided over by those utterly unfit for such duty; under orders which are felt to be a grievance by every man in the department, which damp his ardour, impair his usefulness, and injure the public interests; for it can scarcely be supposed that when a man is placed on duty, and finds his feelings uselessly trifled with, and subjected to unnecessary mortification, that he will always satisfactorily, and to the best of his ability,

perform that duty. It is consonant with human nature, that a man's duty must be irksome, and often ill performed, if the commission granted to him, which he is led to believe is a valid one, is, for no reason that he can understand, made subordinate to the commissions of all other men; and detriment to the public service is inevitable if the superiority he possesses in virtue of his professional education, acquirements, and experience, is capriciously set aside, in favor of less knowledge, less experience, and less efficiency in others. Unfortunately, also, an idea, fostered by this circumstance, is common among medical men, that their influence is too circumscribed; and that a medical man's suggestions on matters connected with his department are often received with coldness and neglect. There is room for this complaint, particularly if his suggestions give trouble, or interfere with the arrangements or views of others; but to him remains the consolation that any intention of treating them with neglect is generally most prevalent among those whose opinions are of least value; and he need not, on that account, succumb to a rebuff, nor leave any point unaccomplished. I cannot, however, help being of opinion, that not unfrequently medical men voluntarily surrender their influential and honorable position, at times from mere apathy and listlessness, and as frequently from a want of confidence in themselves, and a dread of responsibility, or, as they suppose, of placing themselves in a false position with their military brethren; which is perfectly unaccountable, if a man is acquainted with his duty, and determined to do it. From my own experience, I should say, that a useful hint is never taken amiss, and on service there are hundreds of matters that fairly come within the province of the medical man, in regard to which he ought to be in constant communication with the military authorities, and by neglecting which he reduces himself to a cypher, and takes away that influence which he is entitled to, and ought to exercise.

Preparations for the March.—The increased labours which devolve on a medical man when a force is about to move, he may sometimes lighten very considerably by a little previous arrangement and preconsideration. With this view, as soon as a march is ordered, and the destination fixed, he should at once commence

his preparations; for there is much to be done in the way of committee proceedings on dead stock; returning indents of dead stock, and medicines; in framing indents for sick carriage, carriage for hospital stores, &c. &c., so that everything should be in readiness previous to the day of starting.

It sometimes occurs that these arrangements are unnecessarily delayed to the last hour, which ought never to be the case, for something may then be overlooked altogether; and, when the march has fairly commenced, every part of the establishment finds quite enough to do in the ordinary routine duties of the hospital, and in making their private arrangements, without having to bring up arrears; so that the more complete every preparation is before starting, the less will the medical officer be harassed and annoyed afterwards.

Inspections.—Among the preliminary arrangements, there is none deserving of greater attention than a thorough examination of the men previous to marching. In the Regulations, it is very properly ordered that corps about to march shall be disencumbered of all sick and weakly men, as the sick carriage attached to regiments is for the sole purpose of providing for contingencies on the march. Previous to undertaking a march, therefore, particularly if it is a long one, with no intermediate stations where sick could be left, regimental medical officers cannot be too particular in instituting frequent and minute inspections of the men; for nothing worries him so much as to find, after the march has commenced, men crowding into hospital, who must have had diseases upon them at starting.

It is seldom the medical man has more sick carriage than he knows what to do with; and he ought to endeavour, by every means in his power, to economise it at starting; for, with every precaution, he may, ere the march terminates, have considerable difficulties to surmount in regard to it. Partly, I believe, from the strictest attention to this point, we were put to much less inconvenience during the last campaign than we might have been. Before leaving Kurrachee, we had frequent and most minute medical inspections; and every man who had the slightest symptom of disease upon him was ordered into hospital, and kept there till cured. Disease was thus not only arrested, but

the men became more cautious about contracting disease, knowing, as they did, that they ran the risk of being left behind. Unfortunately, our long halt at Roree nearly disconcerted all our plans; for, in addition to fever and bowel complaints, engendered by the damp, cold ground, the men contracted disease to an enormous extent, so that when we again started, no fewer than seventy-two were left behind for transport to Mooltan in steamers. These being thus provided for, we left Roree disencumbered of sick, and again, when we left Mooltan to reinforce the army of the Right Hon'ble the Commander-in-Chief, at Goojerat, we left all our sick behind.

Season.—The best season of the year for marching troops has not been defined, apparently from being so self-evident. The overpowering heat in April and May, the heavy rains and impassable roads in June, July, and August, and the malaria in September and October, are regarded as obstacles to marching which it is well to avoid; and therefore, by long-established usage, troops are seldom required to march in these months, or earlier than the early part of November, or later than the beginning of March. Two very memorable instances of the melancholy consequences of the disregard of experience in this matter within the last few years may be in the recollection of many: H. M.'s 78th Highlanders were moved from Lower to Upper Scinde in August 1844; and ere March 1845, when their removal from the Province became absolutely necessary to prevent the total destruction of the corps, had buried no fewer than six hundred and sixty-nine of their number. The march of the 22nd Regiment N. I. from Mhow to Baroda, in 1846, was scarcely less disastrous. When this ill-fated regiment left Mhow, on the 27th of April, it was known that both cholera and small-pox raged along the line of march, and the medical officer in charge strongly remonstrated against the march at this advanced season of the year, and under such circumstances; more particularly as there seemed no very urgent reason for their reaching Baroda before the rains. His representation was unattended to, and within ten days of their leaving that station, and before they had completed half the distance, there were three hundred cases of cholera, of which two hundred

proved fatal; and the medical officer himself having fallen a victim to the fatal scourge, the regiment was thus left in the middle of the jungle without medical aid, and the dire disease continuing its ravages in all directions. There is reason to suppose, on the other hand, that troops are occasionally moved too early in the season: no doubt it is a great object to get men to their new station, and properly under shelter, before the approach of the hot weather; but, when this can be accomplished, I would always give the preference to the months of January and February for moving troops. These are everywhere the healthiest months of the year; and in the Southern Division, where, from partaking of the Madras monsoon, there is often rain and unsettled weather, and in Guzerat, where the rank vegetation is then in a state of decay, I have no doubt that marching troops ought to be avoided as much as possible very early in the season. On the 1st of November 1837, the 18th Regiment N. I. marched from Kalludghee. The weather was wet, and on the second day cholera broke out: how many cases there were I am unable to say, but the disease carried off fifty-eight men in twelve days.

Marching.—There are very few men in the service, however inexperienced or young, who see any difficulty in conducting a march: every man thinks he understands the subject, and indeed that it is too simple to require the slightest preconsideration. Many military men suppose, that if they can conduct a body of armed men from one camp to another, without suffering from the enemy, without loss of baggage, and without complaints from the villagers, that they do all that is required. A good deal more than this, however, is required; for on the manner of marching much of the healthiness and comfort of the troops depends; and, to conduct a march properly, it ought to be as exact, regular, and precise, as an ordinary parade. With one man, the hour of starting will be determined by no fixed rule, but probably by his own caprice; and the hour of arriving at the new ground will be a matter of the merest indifference. The pace will probably be guided by the pace of his own horse, and the halts by his own feelings of cold or fatigue. But this is not the way to march: the hour of starting ought to be regulated by the distance to be traversed, and, of course, in some measure by the

nature of the roads. The hour of reaching the new camp ought to be such that the men are not exposed unnecessarily to the sun; the pace should be guided by the physical powers of the men; and the halts should be at regular intervals, and regulated so as to rest and relieve them from their fatigues.

To accomplish these objects, it is laid down by the best authorities, and is now practised by all having any experience of marching, that the best pace at starting, and for the first hour, is at the rate of three miles; at the end of the hour a halt of five minutes is allowed. For the next hour, the pace should be at the rate of four miles, and at the end of it there should be a halt of twenty minutes. The third hour ought again to be at the rate of three miles, with a halt of five minutes; and then to start off at the rate of four miles, when, it may be supposed, in ordinary marching, the halting-ground will be reached within the hour; so that the time consumed in a march of fourteen miles ought never to exceed four hours and a half. In forced marches, a halt of at least an hour ought to be given about this time, and then to commence again as at first.

Experience has proved that the above mode of marching is the best, and that the less it is deviated from the better: a very quick pace exhausts a man by the violence of the exercise; a slow one by its long continuance under his heavy accoutrements, and perhaps under exposure. A varied pace, therefore, is considered the best, as it avoids the extremes, and brings into play alternately a different set of muscles. The halts are intended to recruit a man's wearied energies, to reinvigorate him for the remainder of the march, and give him an opportunity of refreshing himself with his pipe, and, if necessary, of relieving nature, and adjusting the stocking over an incipient blister, and so on. As the bugle sounds the halt, the men should, as much as possible in the order they are marching in, and without delay and bother, halt, pile arms, and fall out, so that when they again move off, they have merely to unpile, fall in, and start.

By marching in this manner, and the distance being known, the time of reaching the new ground may be calculated to a nicety; and so well have I seen things arranged and managed, that we could always calculate to within ten minutes at what

time our march would end,—and that time ought never to be later at any season than one half hour after sunrise. By this method of marching, almost any soldier, native or European, can accomplish, even at the commencement of a campaign, an ordinary march with ease; and those who do feel distressed soon get over it. A man knows beforehand, and therefore sets his mind to it, that a certain quantity of exercise is before him; that he has a certain distance to go, and that with almost the same regularity as on his ordinary parades, he will at a regulated time complete it; that he will in the most moderate space of time be relieved of his arms and heavy accoutrements, that he will be able to undress, drink, wash, and get rid of the dust he was smothered in, and either rest till the kit comes up, or, what is more generally the case, provide himself with firewood, water, or supplies, from the neighbouring village or bazaar. He in this case exerts himself cheerfully; he arrives fresh, little fatigued, and full of buoyancy and joy, in the cool of the morning; he has time to cook and enjoy his regular meals, and, if inclined to snooze in the heat of the day, he does so.

In the manner of moving off, a good deal must depend on the nature of the country to be traversed. In ordinary marching, if the route is over rough ground, with bad roads, narrow fords, or bridges, or through deep defiles, or if the country is very jungly, or well hedged in, the best way of moving off is by fours; if the country is more open, level, clear, and the roads will permit of it, there may be room to move off by sections, or subdivisions; but if the enemy is near, and then only, it may be necessary to form and move off in columns of battalions, or brigades, for the object of speedy deployment. This last is obviously a tedious and inconvenient mode of marching, and should be practised only under the circumstances mentioned above; it is consequently seldom witnessed. In a country like India, with its few and imperfect roads or tracks, probably the best mode of moving off is by fours, as all obstructions, such as a dead camel, a broken-down cart, a broken bridge, a water-course, or narrow defile, are thus cleared with much less delay and confusion than in any other way. When the force is large, a signal lantern, hoisted on a bamboo at the place selected for the starting rendezvous, ought

never to be neglected, as otherwise baggage will get in the way, and the corps will almost inevitably now and then get into a wrong direction; and much delay and stumbling about in the dark may be avoided by this simple contrivance.

But a march may be conducted very differently to what I have attempted to describe. Under the supposition that a good night's rest is necessary for the men, they may be allowed to sleep till near gun-fire. At each halt, much time may be uselessly lost, and footsore men may be harassed, by intricate deployments, with forming up, correcting distances, doubling, &c., so that they would prefer having no halt at all. And, under the impression that a slower pace distresses them less, they may be kept loitering on the road for many hours. But can anything compensate the soldier, European or native, for such lengthened exposure in the sun, for sweating and steaming in his accoutrements for so many hours, and for getting no regular meals? Will any man prefer marching under a scorching sun to the cool of the night and morning? Will any man prefer carrying his arms and accoutrements for five, six, or seven hours, under a burning sun, covered with dust, and oppressed with thirst, to doing so for four or four and a half hours in the cool of the night? Will any European prefer eating his breakfast, dinner, and supper, and attempting to digest them between the hours of two and five in the afternoon, to having them at or as near to the usual time as possible? Will any native prefer having barely time to perform his never-to-be-neglected ablutions in the most hurried and slovenly manner, to collect his firewood, water, and flour, to prepare his fire-place, and then to cook his single meal, (for more there is no time for,) to having time and daylight to do so in his accustomed manner? Is it to be wondered at if, under these circumstances, a man drags himself into the new camp, heated, overcome with fatigue, oppressed with thirst, wretched, and out of spirits?

For men to leave the ranks on the line of march is so unusual, that to point out the bad effects of it is useless; nor is the anecdote very applicable, therefore, of Sir Henry Dundas threatening to flog nearly half a Bengal regiment for straggling and obstructing his column on the line of march. Almost equally inapplicable is the anecdote of the Duke of Wellington, and his polite

reply to the commanding officer who, according to the custom of those days, wished, after a long march, to put his men through a few evolutions before dismissing them. The Duke thought the best thing he could do was to parade them to their tents. The practice has been obsolete for many years; but I have seen a regiment, at the conclusion of a march, kept standing under arms for fifty-five minutes before being dismissed!

Dress.—The dress of the soldier on the line of march ought to be the shell jacket, blue barrack change trowsers, cotton shirt, strong highlows and stockings, and a forage cap, with a white padded cover; or even the white pugree bound round the cap, with a loose fold hanging over the back of the neck, looks very well. In such a dress a man has the free use of his limbs and lungs: it, assisted by the heat arising from the active exercise he is in, affords, even in the coldest weather, sufficient warmth to the soldier; and he could scarcely wear any dress so suitable and less oppressive in warm weather. This dress, with the very simple modification of a white shell jacket and pantaloons, is, in my opinion, the only dress a soldier in India ought to wear on any duty, or at any time.

Some people thought it would have been much more dignified in the Bombay Fusiliers had they captured Mooltan in full dress: these people would no doubt have preferred seeing them advanced to the level of their opponents, by being half pinioned, and half choked in tight long-tailed coats, and one half the regiment walking over the full-dressed bodies of the other half in the breach. But the Fusiliers did not throw away that superiority which nature gave them. They preferred attacking the enemy in a manner at once to bear down all opposition, and never again to permit them to rally, and they saved themselves by it.

Indents.—Nothing, perhaps, astonishes or confuses the young medical man more than the extraordinary number and nature of the signatures required to some of his papers, many of which, on coming back to him to be receipted, are already so crowded with a confusion of names and designations as to have scarcely room for his name, or even initials. That to the marching state the signature of the adjutant of the corps or commanding officer

should be appended is intelligible enough, but what great necessity there can be for the names of brigadiers or major-generals to papers they most likely never look at, and could not understand if they did, and why superintending surgeons and other medical authorities should not be able to check, sanction, regulate, and conduct all medical matters whatsoever, strikes them as odd and inexplicable. On one occasion, when about to take the field, I could not get a quantity of medicine out of stores without my indents being sanctioned by the brigadier, who became very facetious on the subject, but very good-naturedly said he was ready to sanction any quantity, or to put his name to any papers I laid before him. That it was a perfect mockery he was as sensible as I was, but still the regulations required it. Certain indents require only the signature of the executive medical officer and the sanction of the superintending surgeon; others must be additionally signed by the regimental commanding officers, the officer commanding the station, the officer commanding the division, and an officer of the quarter master general's department, creating a division of responsibility, and a diversion of it from the proper quarter, which is most edifying; for, probably, after the superintending surgeon and all the other authorities have by their signatures sanctioned the supplies, and testified to the correctness of the indents, back they come, if in passing from one department to another they have not been lost, which is by no means unusual, from some young official (who at times decides summarily and capriciously enough) saying they are all wrong, and refusing to sanction them. That some one ought to be responsible for their correctness is perfectly true, but surely it would be much more becoming in the medical authorities to take this upon themselves, and to be able to do so, than having checks coming from such a quarter. If the superintending surgeon's sanction is necessary for certain supplies, let him be responsible for what is indented for, subject of course to the control of his medical superiors, but certainly not subject to any other department. If the superintending surgeon's sanction is not to be final, then make over the procuring of such supplies to the quarter master of the corps, and let him provide them, along with his other supplies of the same kind.

Sick Carriage.—Executive medical officers are of course only responsible for the sick carriage for their own charge, but the superintending staff are responsible for the whole sick carriage of the force. It is consequently their duty, on the breaking out of hostilities, to ascertain minutely the quantity of available doolies, kajavahs, &c. &c. there may be in store, and above all to ascertain the quantity in a serviceable state; for at Roree, in November 1848, I could not procure my proportion of doolies till a number of old rotten ones were patched up in the Bukkur arsenal, and others were taken from native regiments, and on the march the kajavahs were almost daily becoming unserviceable, from being issued in a bad state of repair; and the arrangements were unfortunately such that no repairs could be performed on the march; and the camels, which might otherwise have been available, were employed in bringing on these almost useless articles. In every campaign, it is usual to have a certain quantity of extra carriage, to be called into play in the event of a break-down in the proper supply. I believe the proportion is one "extra camel" to every ten, but extra "sick carriage" is what I never heard of.

The medical man is seldom distressed with any great superabundance of sick carriage, particularly if in charge of a native regiment, and if the march is a long one. To meet this difficulty, he must resolutely avoid allowing any sick or weakly man, unlikely to stand the march, to accompany the corps. On the march, he must portion out his supply to the worst cases, and, if needs be, on alternate days; but when the cases of disease multiply beyond his means of conveyance, he has no alternative but to apply for more. At the same time, he must take care that he is not imposed upon by designing fellows, and malingerers, which every regiment, European and native, always has a proportion of.

During the last campaign, the European regiments in Bengal had one dooly to every ten men,—we had one to every twenty men, but we had also one kajavah camel to every hundred men. In action, the kajavahs were not of much use; but, by strictly looking after the muccadums, &c. we found no want of sick carriage; and on the march, by giving the less urgent cases a lift for a part of the way, and then relieving them by others, we got on very well. With the native corps, I fear, it was otherwise; for,

with the large number they had wounded, both on the 27th December and 2nd of January, their doolies must have had difficulty in removing the wounded without delay, which might have proved lamentable in its consequences to some unfortunate sufferers.

One thing strikes the young medical man, in framing his indents for "sick carriage," as being very extraordinary, and that is, that none whatever is allowed by the Regulations for the officers of his regiment: why such a rule should be in existence it is difficult to explain, but the experience of every man who has marched with a regiment must convince him of its utter inapplicability; for when does an officer get sick on the line of march, that he does not expect that a dooly is to be given up to him. During last campaign, we marched through a country, where, if officers had been required to provide their own sick carriage, they would have found it impossible to do so, for neither palanquin nor bearers, buggy, cart, nor other conveyance whatever, was procurable, and as a matter of course they were provided with doolies from the proportion provided for the men. On the field of battle, again, if a man receives a ball through his knee joint, does it signify whether he is corporal or colonel, sepoy or subedar,—a dooly must be given up to him.

Doolies.—Our doolies were of all descriptions,—the old pattern, every part fixed and nailed together ; the new pattern, which can be taken to pieces and folded up ; but, convenient though it thus is for packing and conveyance by sea, &c. &c. its improvements are of little value on a march, as to take each dooly to pieces every night would scarcely answer. We had also some with a bamboo pole running through them, and which could be fixed and unfixed with much facility. For any case requiring not to be removed from the dooly, these were convenient, as when run into the tent and the pole removed, the dooly occupied little more space than a man's bed. Some Bengal doolies were an improvement on these, as they could be taken to pieces to a greater extent, thus allowing a man's wounds to be dressed with greater ease, and without removal from the dooly at all. A few such as these should accompany every regiment taking the field ; but ours are perhaps a better protection against the weather, and

patients who can be removed to their beds will always prefer it to remaining night and day in a dooly.

The medical officer is supposed to have entire charge of the dooly-wallas, and to be responsible for their pay, behaviour, and so on, and when they amount to about four hundred men, as ours did on leaving Peshawur, the charge is no inconsiderable one; but the duties are much simplified, as I found, by applying for and receiving power to settle disputes at once, and to flog as occasion requires. He is also expected to regulate the progress of his doolies, which, for want of proper instructions, are apt to get in the way of the column. A little method at first soon gets over this, but still the medical officer must be prepared for constant complaints, as for everything that goes wrong the dooly-wallas are blamed, and it requires no small degree of firmness on his part to protect this hard-worked class of men; for every man with a red jacket on his back considers himself privileged to abuse, push, kick, and cuff the dooly-wallas, whenever they get in his way, or, as quite as often happens, he gets in theirs. Then, again, it is by no means unusual for complaints to be brought against your doolies when you know not one was in the neighbourhood, and in which a man is very likely to be found with a different-coloured coat on his back to that worn by your own corps. One ought to be prepared for these little things, as there are always some officious persons riding about that will make much of a small matter, unless the circumstances are well sifted at the time.

Then there are complaints of a different kind: one man will report the bearers for jolting him in the dooly, another that they lost the road, and so on, as if the poor creatures would do so intentionally; such frivolous and unreasonable stories no medical officer ought ever to be troubled with.

Kajavahs.—In a country where camels are the only baggage cattle, and a cart is seldom to be seen, it is impossible to dispense with kajavahs. We were allowed one kajavah camel to every hundred men, in addition to our doolies, and afterwards, when the men began to suffer from the continued marching, we got extra ones. But the kajavah is a most incommodious conveyance for sick men: patients labouring under certain diseases, as

bowel complaints, ought never to be put into one; and no man with a severe accident can, except under the most pressing circumstances, ever be put in a kajavah; but for men with sprains, sore feet, or who are suffering from their own indiscretions, &c., they of course come into play, and answer tolerably; though very often men with slight complaints soon dismount, and walk alongside the camels, rather than undergo the unmerciful jolting they get in the very best-constructed kajavahs.

Tents.—The tents supplied for European troops are all that can be desired: 24 feet by 16, lofty and commodious, with single walls and double flies, the inner fly meeting and lacing to the top of the wall, and the outer one considerably overhanging it, so as to give a free fall and complete escape for rain,—in this respect far surpassing the Bengal tents we were afterwards supplied with, on our Bombay ones being worn out. These were only 21 feet 4 inches by 14 feet 3 inches; both flies met on the top of the walls, and, as a consequence, the rain, instead of falling clear of the walls, found its course down them, making everything inside damp, cold, and uncomfortable, and soaking with water the ground at and near the bottom of the walls. At such times the patients, instead of lying close up to and comfortably against the wall, must remove their bedding to a considerable distance from it; and thus much space is lost, and the other patients are crowded and incommoded by it. The number of tents granted by the Regulations were during the march found to be ample; and when we had to accommodate a number of wounded men, the quartermaster uniformly met our request for an additional number without a moment's hesitation. The tents allowed to native regiments are of a very different description; small and low, with one fly, and no walls. One night at Mooltan I had to amputate the arm of a native soldier; and though the weather was mild, a light was unsteady, and easily extinguished in the open air; and therefore it became necessary to do so in the tent. Unable to stand, or even to sit upright in that low, confined tent, crowded with wounded, with scarcely room for attendants, intruments, dressings, &c., it became a most unpleasant duty, and was in miserable contrast with our own spacious tents. It is surely well deserving of consideration, whether every native regiment going on

service should not supplied with at least one large tent for the accommodation of particular cases, and as an operating tent.

Baggage.—It is generally supposed that the baggage of an army can be no concern of the medical officers, and no doubt the less he has to do with it the better. He is, however, responsible for the conveyance of his sick, their arrival at the encamping ground in proper time, their speedy accommodation on arrival, and comfort afterwards; and as they travel with the baggage, and his hospital stores, &c. form part of the baggage, the proper regulation of its march is a subject in which he is inevitably much interested. The medical man will perhaps be directed to have his sick carriage on the reverse flank of the column, which of course seems simple enough, and easy to be obeyed; but the column often marches over ground on the flanks of which there is no room for baggage of any kind, and then the other baggage, pushing on in rear, leaves everything on the flank to fall in behind all. On the line of march, if the sick carriage, hospital tents, and stores can keep on the reverse flank, well and good; if they cannot, their proper place is immediately in rear of the reserve ammunition, the soldiers' grog, and money tumbril, if there are any. A march may be so conducted that there is no bustle or confusion in the baggage, on any occasion; but it may also be so conducted, every person interfering, that there is nothing but bustle and confusion. I have seen a narrow pass almost entirely occupied by camels, tattoos, doolies, &c.; and, to make matters worse, an officious staff officer stop every one of them, leaving a small passage, through which it took the column an hour to thread its way; whereas, had he merely cleared it of the crowd occupying it, and prevented others pushing on, the whole might have got through in ten minutes; and I have known another place himself at the further end of a long bridge, from which place to direct the march across, and turn back a whole crowd upon it, which, from the impetus from behind, not only ran the risk of pushing them into the raging flood beneath, but became an utter impossibility, and which attempt, instead of accelerating the passage, retarded the progress of every man behind. But incidents like these are frequent in a campaign where there is no system, or where the system is badly carried out.

Hospital Establishments.—On service European regiments are generally allowed a surgeon and three assistant surgeons; and my experience convinces me they ought never to have less, for though in ordinary times there may be little to do, the day does come when they all find sufficient on their hands. During the late operations, for instance, one of our assistant surgeons was almost daily required in the trenches; and as he had to rest the following day, when another went down, of course to commit patients in hospital to their care would not have answered.

On the day of action, again, one medical officer must be with the regiment, and there are few enough to look after the wounded, particularly if the engagement is with artillery. Then there are contingencies to provide for, as the sickness of one, and provision must be made for the wounded afterwards, and no man is so fit as a medical man of their own corps to look after wounded, or sick men left behind.

Every native corps on field service ought to have at least two medical officers. To send any regiment into the field with fewer, is to send it in an inefficient state. One medical officer must be in attendance in rear of his regiment, when it is engaged, and I defy him to do all that ought to be done at such a time for wounded men. He applies first dressings, represses hemorrhage, and puts the men into doolies,—more he cannot do, and more he is not there expected to do. Who then is to attend to the wounded afterwards, and to perform the requisite capital operations? If these unfortunate men have to wait for him, we know the best time for operating escapes, and they come under him again at the end of a fatiguing, anxious day, when he requires rest as much as any other man. He may, however, be able to take off a certain number of legs and arms, and, when the rouse sounds next morning, jaded and knocked up, he may again appear in rear of his regiment, again to go through the previous day's toils; but, in this way, it can scarcely be supposed that his work can be done as it ought to be done. The system does not do him justice, and his patients may be sacrificed; and, if fresh work is in store for him, God pity him and the wounded! It is a matter of no small consideration, either, how far any medical man, assisted only by the ill-instructed native

attendants, generally to be met with in a native corps, or with most of them otherwise engaged, can perform the different capital operations that occur, and therefore it is hard for the men of such corps to be subject to such risks.

No regiment, native or European, ought to start on field service without the proper complement of fully competent hospital servants, with, if possible, a few extra hands. Though these extra hands, where is a general hospital, with a due complement, would of course be less necessary, every hospital ought to have the full complement, not of acting and ignorant, but duly qualified assistants; nor ought these, when once complete, to be lightly or thoughtlessly interfered with, or reduced; for the confusion and want of foresight at times to be met with are heart-rending. Such a trifling with the lives and limbs of men is deplorable,—sometimes not a fire to warm a bit of sticking-plaster, nor a pot of warm water to cleanse a wound.

Field Hospital.—From the Regulations regarding field hospitals being too literally attended to, it may occur that to establish one becomes almost impracticable, and that when military operations commence, there may not be a tent into which a wounded man can be received, there may not be a dooly to convey him to it, nor a ward-boy to attend him when he gets there, nor bedding, nor medical comforts, perhaps not a fire to prepare warm water, nor an ounce of sago, nor a cook to cook it, nor a sweeper to keep things clean, until they are supplied by the different corps from which the wounded are sent, so that in fact, instead of corps having to look to it in a pinch, they may have to supply it with the means of carrying on its work,—denuding themselves of their established proportion, and reducing themselves to inefficiency. Were any of the regiments thus situated directed to move suddenly, as for instance in pursuit of armed parties, or to intercept reinforcements, there would most likely be little time to make arrangements, and they would march with their hospital in a crippled and inefficient state.

It is laid down that when a field hospital is to be established, the commissariat department must furnish all articles required, including hospital servants, &c., but can the commissariat department always procure ready-made hospital servants, or are we to

suppose that ward-boys, dressers, compounders, &c. can be made in a day? Can the very dregs and offscourings of a camp, who hang about merely in expectation of some such service, be considered fit for such responsible duties as these, when taken at a moment's notice? In a distant campaign, unless it is well understood that the resources of the country are likely to supply all that is requisite for a field hospital, a complete establishment ought to accompany the medical officer nominated to the charge, and which, in my opinion, ought even to include a supply of tents, and a quantity of spare sick carriage. In this way the field hospital would be able to assist and relieve regimental medical officers without crippling their hospitals; instead of being, as under other circumstances may occur, a drag upon, and inconvenience to them.

To every general hospital, if not to every European regiment in the field, there ought to be attached a certain number of peons, to act as a kind of medical police; for the trouble and inconvenience from disease propagated, in spite of every precaution, by a number of loose characters that always accompany a camp, are most annoying; and the extra sick carriage required for such cases would amply repay the expense of such an establishment.

Troops Afloat.—Few people who have accompanied troops on board a ship can wish to do so again. The confusion and bustle, and want of comfort, I have there witnessed, I have never seen elsewhere. Men are packed, not exactly like herrings in a barrel, one over the other, but as close alongside of each other as they can be stowed; all interstices are choked up with baggage; and there is no room for any man to change the position he in the first instance settles himself into. Few landsmen know much of the economy of a ship; and as to an attempt to make anybody more comfortable, it seems seldom to be expected. No sooner is it reported that the last man has set his foot on the vessel's planks, than the haste, and hurry, and activity exhibited on board would make one believe that not only the safety of the ship, but of all in her, depended on getting under weigh forthwith; no matter whether the place each man is to occupy has been pointed out or not,—no matter whether he has found

his baggage, or has any bed to lie upon,—no matter if half the men on board are put to the greatest inconvenience for the whole voyage, from the want of a little time and arrangement at starting,—the precious time cannot be spared.

I must confess I have never been able to discover any good reason for all this crushing and cramming of soldiers into the very least space they can occupy; for is the expense of a little extra tonnage to make men comfortable, and keep them in health, to be compared to the risks and losses thus encountered? I have been fortunate in never having been on board with much sickness prevailing, but the misery and loss of life that must result from such want of comfort and crowding I can easily imagine. On no occasion ought any commanding officer to sanction a ship setting sail, until every man on board, sick or well, is made as comfortable as circumstances will admit of. When we embarked on the Indus, I took all the sick into the steamer with myself; and as men fell sick in the other steamers, I had them removed into mine; but of course I placed an assistant surgeon, with part of the hospital establishment, in each of the other steamers, to be ready in the event of accidents, &c. In like manner, when we embarked at Kurrachee, I took all the sick with the head quarter wing; by this arrangement one set of requisitions and indents for hospital rations and supplies, &c. &c. were sufficient, and the risk was avoided of having these papers made out by people unused to the calculations, &c.; and we were troubled with no references, &c. afterwards.

Table showing the Number of Admissions, the Number of Deaths, and the Per-centage of Deaths on Admissions, in the Native General Hospital, for each Month, from the Year 1813 *to* 1848.

Year.	January.			February.			March.			April.			May.			June.			July.			August.			September.			October.			November.			December.			Grand Total of all.		
	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.	Admitted.	Died.	Per-centage.
1813..	42	10	23·8	25	15	60·0	26	5	19·2	40	11	27·5	28	1	3·5	24	2	8·3	23	6	26·1	63	19	30·1	48	11	22·9	26	4	15·3	18	4	24·4	18	1	5·5	381	89	23·3
1814..	32	6	18·7	26	4	15·3	31	2	6·4	34	6	17·6	30	3	10·0	28	5	17·8	23	7	30·4	32	4	12·5	16	8	50·0	25	13	52·0	30	6	20·0	29	9	31·0	336	73	21·7
1815..	23	11	47·8	29	8	27·5	25	8	32·0	26	7	26·9	31	2	6·4	31	11	35·4	24	5	20·8	30	14	46·6	24	15	62·5	29	13	44·5	27	3	11·1	17	6	35·2	316	103	32·5
1816..	16	7	43·7	24	5	20·8	18	6	33·3	15	5	33·3	23	6	26·0	25	6	24·0	23	9	39·1	19	6	31·5	20	4	20·0	29	10	34·4	26	6	23·0	27	5	18·5	265	75	28·3
1817..	24	9	37·5	16	4	25·0	25	4	16·0	17	5	29·4	27	7	25·9	21	3	14·2	41	4	9·7	32	7	21·8	34	5	14·7	36	7	19·4	19	8	42·1	13	12	92·3	303	75	24·7
1818..	22	5	22·7	34	7	20·5	29	5	17·2	24	7	29·5	23	9	39·1	24	2	8·3	21	6	28·5	20	8	40·0	30	7	23·3	32	9	28·1	18	8	44·4	17	10	58·8	294	83	28·2
1819..	27	7	25·9	29	10	34·4	35	8	22·8	36	7	18·9	48	4	8·3	25	8	32·0	25	7	28·0	30	3	10·0	38	9	23·6	34	3	8·8	36	5	13·8	34	9	26·4	397	80	20·1
1820..	46	14	30·4	39	5	12·8	54	8	14·8	42	12	28·5	48	12	25·0	44	12	27·2	40	10	25·0	35	9	25·7	34	9	26·4	37	4	10·8	69	19	27·5	28	14	50·0	516	128	24·8
1821..	34	8	23·5	32	4	12·5	37	11	29·7	67	10	14·9	35	10	28·5	54	15	27·7	43	19	44·1	51	21	41·1	37	23	62·1	32	6	18·7	36	9	25·0	30	5	16·6	488	141	28·8
1822..	28	13	46·4	23	4	17·3	27	3	11·1	29	7	24·1	45	8	17·7	38	8	21·0	34	9	26·4	23	13	56·5	21	10	47.6	26	5	19·2	34	14	41·1	28	11	39·2	365	105	29·4
1823..	13	4	30·7	28	4	14·2	45	10	22·2	31	4	12·9	38	5	13·1	37	7	18·9	46	9	19·5	39	8	20·5	36	10	27·7	36	10	27·7	33	7	21·2	37	7	18·9	419	85	22·8
1824..	44	4	9·0	25	8	32·0	44	2	45·4	28	5	17·8	37	5	13·5	46	8	17·3	28	14	50·0	38	8	21·0	26	7	26·9	40	10	25·0	32	10	31·2	29	9	31·0	417	90	21·5
1825..	51	13	25·4	48	14	21·8	54	12	22·2	47	10	21·2	50	15	30·0	56	10	17·8	48	9	18·7	54	12	22·2	55	10	18·1	43	14	32·5	54	12	22·2	58	15	25·8	618	146	23·6
1826..	39	9	23·0	35	10	28·6	43	12	27·9	40	8	20·0	41	10	24·3	38	7	18·4	42	9	21·4	37	6	16·2	26	10	38·4	49	11	22·4	40	13	32·5	42	8	19·0	472	113	23·9
1827..	39	12	30·5	41	10	24·7	40	13	32·5	35	11	31·4	44	9	20·4	37	11	29·7	40	12	30·0	42	10	23·8	37	12	32·4	40	10	25·0	48	8	16·6	34	10	29·4	477	128	26·8
1828..	42	9	20·4	40	8	20·0	35	10	28·5	38	7	18·4	41	12	29·2	45	11	24·4	36	9	25·0	38	8	21·0	40	13	32·5	30	10	33·3	32	7	21·8	33	7	21·2	450	111	24.6
1829..	19	4	21·0	33	7	21·2	33	6	18·1	34	3	8·8	27	6	22·2	23	5	21·7	20	5	25·0	30	4	13.3	29	8	27·5	22	9	40·9	22	7	31·8	27	7	25·9	319	71	22·2
1830..	33	7	21·2	33	8	24·2	43	7	16·2	27	4	14·8	38	7	18·4	31	5	16·1	30	6	20·0	32	4	12·5	37	2	5·4	29	5	17·2	29	3	10·3	43	10	23·2	405	68	16·7
1831..	47	5	10·6	39	12	30·7	33	5	15·4	45	7	15·5	47	10	21·2	42	7	16·6	47	7	14·8	62	12	19·3	37	8	21·6	49	8	16·3	66	8	12·1	62	8	12·9	576	97	16·8
1832..	62	10	16·1	51	5	9·8	36	11	30·5	43	10	25·5	48	9	18·7	50	9	18·0	44	6	13·6	44	6	13·6	44	5	11·3	44	8	18·1	44	14	31·8	42	16	38·0	552	109	17·9
1833..	53	10	18·8	52	14	26·9	49	12	24·4	65	13	20·0	65	17	26·1	60	10	16·6	64	11	17·1	65	8	12·3	51	14	27·4	52	14	26·9	57	15	26·3	50	9	18·0	684	147	21·4
1834..	74	17	22·9	52	15	28·8	43	10	23·2	57	8	14·0	59	7	11·8	46	9	19·5	54	13	24·0	57	8	14·0	61	15	24·5	64	6	9·3	81	16	19·7	82	17	21.9	730	141	19·3
1835..	65	13	20·0	54	15	27·7	69	14	20·2	71	13	18·3	65	20	30·7	64	13	20·3	78	11	14·1	66	10	15·1	54	8	14·8	73	10	13·6	76	13	17·1	71	20	28·1	806	160	19·8
1836..	101	18	17·8	84	13	15·4	74	11	14·8	67	11	16·4	79	8	10·1	66	16	24·2	71	21	29·5	75	19	25·3	55	16	29·0	59	12	20·3	58	17	29·3	96	16	16·6	885	178	20·1
1837..	84	15	17·8	79	21	26·5	98	12	12·2	109	18	16·5	104	16	15·3	118	27	22·8	100	25	25·0	90	32	35·5	101	28	27·7	118	27	22·8	110	18	16·3	144	25	17·3	1,255	264	21·0
1838..	117	26	22·2	89	15	16·8	130	19	14·6	127	18	14·1	112	12	10·7	108	8	7·4	113	24	21·2	109	15	13·7	126	17	13·4	146	22	15·0	113	16	14·1	149	25	16·9	1,439	217	15·0
1839..	136	16	11·7	101	22	21·7	113	24	21·2	148	27	11·4	151	33	21·8	156	31	19·8	156	19	12·1	186	30	16·1	141	32	22·6	153	25	16.2	162	25	15·4	177	32	18·0	1,780	316	17·7
1840..	161	23	14·2	140	24	17·1	177	33	18·6	192	34	17·7	172	33	19·1	153	22	14·3	147	21	14·2	170	16	9·4	162	17	10·4	138	25	18·2	148	25	16·8	144	26	18·0	1,904	299	15·7
1841..	139	27	19·4	131	22	16·7	132	24	18·1	150	18	12·0	167	18	10·7	141	21	14·8	171	21	12·2	161	17	10·5	145	19	13·1	193	21	10·8	189	28	14·8	241	35	14·5	1,950	271	13·8
1842..	197	40	20·0	137	30	21·8	163	27	16·5	172	33	19·1	224	66	53.2	171	35	20·4	193	36	18·6	179	38	21·2	200	41	20·5	168	38	22·6	202	47	23·2	206	64	31·0	2,212	495	22·3
1843..	166	51	30·7	200	41	20·5	210	38	18·5	160	33	20·6	196	25	12·7	176	25	14·2	158	29	18·3	137	31	22·6	109	32	29·3	161	20	12·4	172	26	15·1	182	32	17·5	2,069	383	18·5
1844..	180	32	17·7	212	38	17·9	292	55	18·8	175	38	21·7	208	41	19·7	153	29	18·9	167	32	19·1	156	32	20·5	149	31	20·8	188	21	11·1	188	30	15·9	190	22	11·5	2,258	401	17·7
1845..	208	42	20·1	180	52	28·8	260	36	13·9	240	39	16·5	227	31	13·6	315	75	23·8	316	64	20·2	254	45	17·7	309	37	11·9	283	57	23·6	286	50	17·4	326	53	16·2	2,964	542	18·2
1846..	264	52	19·6	217	41	18·8	328	54	15·4	225	44	19.5	303	59	19·4	284	64	22·5	279	37	13·2	271	62	22·8	314	54	17·1	263	44	16·3	244	36	14·7	235	55	23·1	3,227	602	18·6
1847..	222	37	16·6	191	30	15·7	245	38	15·5	261	31	14·1	282	26	9·2	309	46	14·8	281	34	12·0	309	45	14·5	269	33	12·2	296	37	12·5	340	27	7·9	337	47	13·9	3,342	431	12·8
1848..	300	45	15·0	283	49	17·3	327	58	17·7	297	45	15·1	270	35	12·9	282	47	16·6	335	61	18·2	297	40	13·4	318	29	9·1	278	47	16·9	287	45	15·6	311	64	20·5	3,585	565	16·2

Article V.

Statistical Report of the Jamsetjee Jejeebhoy and Native General Hospitals, for the Years 1845, 1846, 1847, *and* 1848. By J. Peet, Esq., Assistant Surgeon J. J. Hospital.

Presented January 1849.

The Jamsetjee Jejeebhoy Hospital, built and endowed at the joint expense of the Hon'ble East India Company and of Sir Jamsetjee Jejeebhoy, Kt., was opened for the reception of patients at the latter end of May 1845, at which time the inmates of the Native General Hospital, 175 in number, were transferred to it. The Native General Hospital had been established and supported by Government, alone, for many years; its records being traceable so far back as the end of the last century. Until within a recent period, however, the amount of relief afforded by that Institution was comparatively inconsiderable, as will be seen by a reference to the annexed Table, which shows the average number of persons in the hospital for each year, since the early part of the present century :—

Table showing the Average Number of Patients in the Native General and Jamsetjee Jejeebhoy Hospitals, from the Year 1808.

Year.	Average Number in Hospital.	Year.	Average Number in Hospital.	Year.	Average Number in Hospital.	Year.	Average Number in Hospital.
1809	20	1819	62	1829	28	1839	105
1810	22	1820	75	1830	32	1840	120
1811	22	1821	77	1831	36	1841	148
1812	36	1822	73	1832	37	1842	123
1813	49	1823	84	1833	42	1843	135
1814	49	1824	88	1834	48	1844	155
1815	43	1825	70	1835	56	1845	180
1816	44	1826	65	1836	58	1846	165
1817	58	1827	75	1837	77	1847	163
1818	58	1828	80	1838	80	1848	215

From this Table it will be observed that the average number of patients in the hospital for the five years previous to its merging into that which bears the name of Sir Jamsetjee Jejeebhoy, viz. from 1839 to 1844, exceeds the preceding five years in the proportion of nearly double; and is treble that of any similar period more remote.

The increase here shown is doubtless in some measure due to the greater extent of accommodation afforded for the treatment of the sick, but that it has also been greatly influenced by the daily growing confidence of the Natives in the European treatment of disease, there cannot, I think, be a doubt.

From a reference to the earlier records of the hospital, it would seem that, on its first establishment, the inmates consisted almost entirely of paupers sent by the police in the last stages of disease, or of persons employed in the public departments; and it may be fairly questioned whether any but persons of the lowest castes voluntarily sought relief from hospital treatment. As might be anticipated from the circumstances here stated, the mortality was extremely great: thus, between the years 1809 and 1819, it was never less than 20 per cent.—sometimes it rose as high as 39 per cent.—the average during the whole period being 27·9 per cent. In confirmation of this statement, I would refer to the following Table, which exhibits the annual admissions, the deaths, and the per-centage of deaths on admissions, for each year, from 1809 up to the present time:—

Number of Admissions and Deaths from 1809 *to* 1848, *arranged in Decennial Periods, showing the Per-centage of Deaths on Admissions for each Period.*

1809 to 1818.		1819 to 1828.		1829 to 1838.		1839 to 1848.		Total.	
Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
38	15	407	83	319	71	1680	300		
150	57	516	118	382	68	1804	299		
145	48	488	141	535	89	1950	264		
207	63	356	105	565	109	2212	499		
381	89	419	85	689	147	2069	383		
336	73	417	90	735	141	2058	409		
316	103	618	147	786	140	2920	552		
265	75	472	113	873	166	3227	572		
304	75	478	128	1021	256	3832	498		
294	83	450	110	1340	227	3520	572		
2,436	681	4,621	1,120	7,245	1,414	25,272	4,348	39,574	7,563
27.9		24.2		19.5		17.2		19.1	

Table showing the Number of Admissions and Deaths, with the Per-centage of Deaths on Admissions, for each Year from the Year 1808.

Years.	Admissions.	Died.	Per-centage.	Years.	Admissions.	Died.	Per-centage.	Years.	Admissions.	Died.	Per-centage.
1809	38	15	39·5	1823	419	85	20·2	1836	873	166	19·0
1810	150	57	38·0	1824	417	90	21·5	1837	1021	256	25·0
1811	145	48	33·1	1825	618	147	23·7	1838	1340	227	16·9
1812	207	63	30·4	1826	472	113	23·9	1839	1680	300	17·8
1813	381	89	23·3	1827	478	128	26·7	1840	1804	299	16·5
1814	336	73	21·7	1828	450	110	24·4	1841	1950	264	13·5
1815	316	103	32·5	1829	319	71	22·2	1842	2212	499	22·5
1816	265	75	28·3	1830	382	68	17·8	1843	2069	383	18·5
1817	304	75	24·6	1831	535	89	16·6	1844	2058	409	19·8
1818	294	83	28·2	1832	565	109	19·2	1845	2920	552	18·9
1819	407	83	20·3	1833	689	147	21·3	1846	3227	572	17·7
1820	516	118	22·8	1834	735	141	19·0	1847	3832	498	12·9
1821	488	141	28·8	1835	786	140	17·8	1848	3532	539	15·2
1822	356	105	29·4								

If we divide the 40 years comprised in this Table into 4 equal periods, of 10 years in each, we shall find that for the first 10 years, as before stated, the number of deaths on admissions is in the ratio of 27·9 per cent.; for the second period it had decreased to 24·2 per cent.; in the third period it is only 19·5 per cent.; whilst in the last period it has still further decreased to 17·2 per cent. The explanation of this diminished rate of mortality is not difficult. As the confidence of the native community in the skill of European medical practitioners gradually gained ground, they naturally resorted to the hospital at earlier stages in the progress of disease; and in some instances sufficiently early to admit of relief being afforded. But it cannot be concealed that even at the present moment a mortality of 15·8* per cent. upon the total hospital admissions is very much higher than in similar institutions in European countries. The regularity, however, with which it has hitherto decreased, more particularly during the last few years, holds out the prospect that the time is not far

* During the year 1848 the mortality has only amounted to 15·8 per cent.

distant when a more favourable report may be given in regard to this important point.

By a refernce to the foregoing Tables, it will have been noticed that a great increase in the number of admissions occurred during the years 1834 and 1835. This led to frequent applications to Government for additional accommodation, the wards of the Native Hospital being inadequate, both as regarded size and arrangement, to permit of the admission of all those applicants whose cases required, and were likely to be benefited, by hospital treatment. Whilst these applications were under the consideration of Government, an offer was made by Sir Jamsetjee Jejeebhoy to contribute a sum of money for the purpose of extending the benefit of European medical treatment to the native community, provided Government would contribute largely to the same object. Sir Jamsetjee's munificent offer led to the erection and endowment of the hospital which is distinguished by his name, about one-third of the expense of the building and ground being defrayed by him, and about one-fifth of the estimated income being derived from the interest of his donation.*

The hospital, erected and endowed in the manner now stated, was opened for the reception of patients on the 15th May 1845. It occupies an airy and central position, at the Byculla end of the Bhendy Bazaar, standing on the northern extremity of a spacious compound, upon the opposite side of which the Grant Medical College has been erected. It affords accommodation for 300 patients, and consists of 14 wards, each capable of containing 20 patients, and of 8 smaller wards, each adapted for the reception of 2 or 3 patients. The wards are lofty, and extremely well ventilated; and are all furnished with iron cots. The inmates comprise natives of all castes, who are admitted either upon their personal application, the recommendation of their employers, or at the desire of the police authorities. It should be, however, stated that in no case are patients retained in hospital whose diseases are such as not to require hospital treatment. For the relief of diseases of a slight or incurable nature, as well as for the benefit of those persons who, from prejudices of caste or

* Vide Dr. Morehead's Report of the Grant Medical College for the years 1845-46, 1846-47, 1847-48, page 6.

other circumstances, are averse to become in-patients, a dispensary has been established, where an average of nearly a hundred persons daily receive medicines and advice.

The population of Bombay, as is well known, fluctuates greatly; large numbers of persons resorting to the Presidency at particular seasons for the purposes of trade. The statistics of the hospital, therefore, cannot be viewed as affording anything like a correct estimate of the diseases peculiar to the inhabitants; nor, for obvious reasons, are they worthy of being considered in any respect as more than an approximation to the truth. Of the class of persons referred to in the preceding paragraph, a considerable number, on the occurrence of sickness, present themselves for admission either as in or out-patients; it consequently follows that a proportion of the diseases included in the hospital returns occur in the inhabitants of, and are not unfrequently brought from other countries.

It is doubtless generally understood that the Jamsetjee Jejeebhoy Hospital constitutes the practical school for the students of the Grant Medical College. The classification of the sick is made partly dependent upon this connexion; partly with reference to caste; and in some instances according to the nature of the diseases with which the patients are affected. For the purpose of affording suitable clinical instruction, two wards are set apart, and designated the "Clinical Medical" and the "Clinical Surgical Wards." These wards are visited daily by the professors of medicine and surgery respectively, at the hours laid down in College Rules; with this exception the patients are visited by the medical officers at the hours prescribed by the Medical Regulations.

The medical officers attached to the hospital are a surgeon and two permanent assistant surgeons, assisted by a first class hospital establishment.

The patients are for the most part clothed and dieted at the expense of the hospital; in a few instances only are they permitted to procure their food from their own houses. A copy of the Diet Table now in use is annexed :—

Diet Table.

Meals.	Full Diet.		Half Diet.		Low Diet.	Milk Diet.	Spoon Diet.	
	A.	B.	A.	B.			A.	B.
Breakfas.	One pint of tea; daily allowance of bread twelve ounces.	Four ounces of rice, to make a pint of conjee.	One pint of tea, eight ounces of bread.	Four ounces of rice, to make a pint of conjee.	Four ounces of rice, to make a pint of conjee.	Three ounces of rice, to make a pint of conjee, with half a pint of milk, and half an ounce of sugar added to it.	One pint of tea, four ounces of bread.	Three ounces of rice, to make a pint of conjee, with two ounces of milk added to it.
Dinner.	Eight ounces of mutton, or beef, or chicken, or half a fowl, and six ounces of rice, with curry stuff.	Eight ounces of rice, one quarter of a pound, or four ounces, of dhall, and one ounce of ghee, to make kedgeree.	Four ounces of mutton, or half a chicken, or one-third of a fowl, and four ounces of rice, with curry stuff.	Eight ounces of rice, one quarter of a pound, or four ounces, of dhall, and one ounce of ghee, to make kedgeree.	Rice six ounces, dhall two ounces, ghee one ounce, to make kedgeree.	In the proportion of five ounces of rice for boiling, and half a pint of milk, with half an ounce of sugar.	Four ounces of rice or two ounces of boiled arrowroot or sago, and half an ounce of sugar.	In the proportion of about five ounces of rice for boiling, and four ounces of milk.
Supper.	One pint of tea.	Eight ounces of wheaten flour, eight ounces of mutton, with curry stuff.	One pint of tea.	Eight ounces of wheaten flour, or rice flour, one quarter of a pound, or four ounces, of mutton, with curry stuff.	Six ounces of wheaten flour, half a pint of milk, and half an ounce of sugar.	Three ounces of rice, to make a pint of conjee, with half an ounce of sugar, and six ounces of milk added to it.	One pint of tea.	Three ounces of rice, to make a pint of conjee, with half an ounce of sugar added to it.

Remarks.—For each patient on full diet and half diet, curry stuff one ounce, and cocum half an ounce, are drawn, the curry stuff consisting of proportions of the following ingredients: ginger, turmeric, onions, garlic, black pepper, chilly, jeera, and coriander. Salt in the following quantities is drawn: for each patient on full diet and half diet two-thirds of an ounce; for patients on low diet half an ounce; and for patients on spoon diet one-third of an ounce.

The full, half, and spoon diets are of different kinds, to suit the habits of the various classes of the hospital inmates.

The hospital, as previously stated, was opened in May 1845; but as all the returns have hitherto been made out from the beginning of the year, it has been deemed advisable to commence this report from the 1st January 1845, comprising, up to the end of December 1848, an unbroken period of four years. It will therefore be understood that the first five months of the report refer to the Native General Hospital.

During the four years 13,051 patients have been admitted, of which number 2,131 have died, being a per-centage of 16·3 upon the total admissions. The most fatal diseases during this period have been dysentery, cachexia,* remittent fever, cholera, ulcers, and thoracic affections: under these heads no less than 1,143 of the fatal cases are included. The following table will shew the admissions, the deaths, and the per-centage of deaths on admissions, of these diseases, during each of the four years:

* In explanation of the large proportion of cases marked cachexia, it may be mentioned that a considerable number of emaciated persons are brought to the hospital by the police in a dying condition, having been picked up in the streets. It is obvious that under these circumstances, in many instances, no account of the disease from which the patient may have suffered can be obtained, and it has consequently been customary to enter such cases as cachexia in the hospital returns.

Table shewing the Admissions, with Per-centage of Deaths on Admissions, of the most prevalent fatal Diseases.

	1845.			1846.			1847.			1848.			Total.		
	Admissions.	Deaths.	Per-centage.	Admissions.	Deaths.	Per-centage.	Admissions.	Deaths.	Per-centage.	Admissions.	Deaths.	Per-centage.	Admissions.	Deaths.	Per-centage.
Dysentery	176	89	50.5	165	60	36.3	100	32	32.0	137	55	40.1	578	236	40.8
Cachexia	36	28	77.7	41	21	51.2	151	98	64.2	163	113	69.3	391	260	66.4
Remittent Fever	122	53	43.4	119	42	35.2	150	44	29.3	195	56	28.7	586	195	33.2
Cholera	85	60	70.5	118	76	64.4	3	2	66.6	1	1	100	207	139	67.1
Ulcers	199	36	18.0	225	40	17.7	114	9	7.8	203	29	14.2	741	144	19.4
Thoracic Affections	130	45	34.6	178	69	38.7	114	37	29.8	184	48	26.0	606	199	32.8
Total	748	311	41.5	846	308	36.4	632	222	34.8	883	302	34.2	3,109	1,143	36.7

For the following memorandum upon the diseases of a medical nature I am indebted to Dr. Morehead.

Medical Practice.—My observations on the medical diseases treated in the Jamsetjee Jejeebhoy Hospital during these four years must necessarily be limited: the admissions in advanced stages of disease, with very imperfect histories of the early symptoms, are so numerous, and the number of patients to be daily visited so great, that I have not as yet been able to arrange the notes which I possess, or to give that attention to the pathology and treatment of the diseases of the inmates of this hospital which alone could entitle me to write with confidence in regard to them. The establishment of a well-arranged system of clinical instruction in connection with the medical college will go far to place at my disposal a carefully-observed and faithfully-recorded series of cases of the diseases common in those classes of the native community who resort to the hospital for relief. These I shall hope, at some future time, to be able to digest and arrange.

In the mean time, in noticing some of the principal diseases entered in these returns, I shall chiefly confine myself to a brief allusion to those points to which future inquiry may with profit be directed.

Intermittent Fevers.—These amount to 1,168 in the four years, and of these 46 proved fatal. The admissions from these diseases are, in many instances, of individuals who have suffered from frequent relapses; who have enlarged spleens, and have become reduced and emaciated from, partly the consequences of the disease, often that of insufficient means of subsistence. In a considerable proportion of the cases, the intermittent fevers are not to be attributed to malarious influence generated in Bombay. They occur in temporary residents in the island,—in pilgrims, for example, on their way to Mecca, from the interior parts of India; in the sepoy guards who come to Bombay from Malwa, in charge of opium, and in others of the numerous visitors who come to the island during the dry season from the adjoining provinces, in search of employment. But there is no doubt that the causes of intermittent fever are sufficiently active in the island itself, varying, we may believe, in different parts,

and it should be an object to endeavour to determine which these are. The dockyard is one already well known, and the frequent admissions of the dockyard peons, affected with intermittent fever, may be received as further evidence of this fact.

Remittent Fever.—The admissions from this type of malarious fever amount to 586, the deaths to 195. The several observations made relative to the intermittent type are equally applicable to this. It is very seldom that the fever is simple,—it is generally associated with one or other of the following complications, which are stated in the order of their frequency :—

With Pneumonia.—This is a very frequent complication, and one which is very liable to be overlooked, unless percussion and the stethoscope be regularly and assiduously used. If the complication be early detected, the issue of these cases is on the whole very favourable. It will be of interest to determine whether this complication is more prevalent at certain seasons than others, and in some years compared with others ; whether it has any relation to period of life or to occupation, and whether the pneumonic complication is frequently coincident with the commencement of the febrile attack, or generally an event of its later stages.

With Jaundice.—This is also a sufficiently common complication of remittent fever. The same question arises in regard to this as to pneumonia. The pathology is also of much interest. The jaundice is no doubt due in different cases to the different derangements to which it has been attributed in its idiopathic form. The collection of precise information on this point is very desirable.

The remittent fevers are also at times complicated, with cerebral determination, and gastro-enteric irritation, or sub-acute inflammation.

Small-Pox.—The admissions from this disease amount to 190, the deaths to 79. I have on a former occasion submitted to the Society observations on the small-pox as it presented itself in the hospital during part of the period embraced by these returns.

Cholera, Epidemic.—The admissions amount to 207, the deaths to 137. With the exception of four cases, the admissions took place in the years 1845-1846. The almost complete exemption

from cholera in the years 1847 and 1848 is one of the striking circumstances in the medical history of the hospital for these years.

Apoplexy.—21 admissions and 20 deaths. This great mortality accords with that recorded by me in the Transactions of the Society relative to the same disease as occurring in the European General Hospital. They are generally brought to hospital in an advanced stage, and the attack is very often traceable to exposure to the sun and excesses in drinking.

Paralysis.—The admissions under this head amount to 151, the recorded deaths to 25. This is a disease in regard to which, as occurring in this hospital, there is much scope for inquiry on all those points which are of interest. The forms in which it is most common, its relation to periods of life, to habits, to other diseases, to particular morbid lesions, and their situations, are amongst the important subjects to which attention should be given.

Thoracic Inflammations.—Of these, pneumonia is by far the most common, and the admissions very often take place after considerable portions of the lung have passed into a state of hepatization. Amongst the poor classes of the native community in Bombay those exposed to the inclemencies of the weather, and probably at the same time suffering from imperfect means of subsistence, pneumonia is a very common disease. Its ratio to hepatitis and dysentery, the generally-admitted common tropical inflammations, I am unable to state with anything like precision : in the classes of whom I write it is, I believe, much more common than hepatitis, and fully as common as dysentery.

The returns of the hospital up to the present time by no means, I am convinced, represent the full degree of frequency of pneumonic disease. The symptoms are often obscure, and the disease is very likely to be overlooked, unless percussion and the stethoscope be carefully used in regard to every admission into the hospital. The general symptoms of pneumonia in the asthenic states, characteristic of many of the natives of India, more particularly those who resort to this hospital, are, compared with those of pneumonia in the more sthenic constitutions of European countries, very imperfectly developed. If percussion and

the stethoscope be essential to the correct diagnoses of pneumonia in temperate climates, they are, I am convinced, tenfold more so in pneumonia as it occurs in the natives of Bombay. There are also many points of interest to determine in regard to the pathology of pneumonia, as presenting itself in the inmates of the hospital. It will be found, I believe, that red and grey chronic induration are very common, and that the true red hepatization is much rarer,—the reverse, in fact, of what is observed of pneumonia in Europe,—also that gangrene is more common than in the European pneumonia, and not unfrequently succeeds the grey induration, taking place at isolated points, and running into irregular excavations, not unlike those resulting from tubercular softening; with this difference, however, that they will be found more frequently to have taken place about the middle or lower part of the lung than at its apex.

The treatment is also of interest. I have said that admission not unfrequently takes place after considerable portions of the lungs have become solidified: recovery from this state is not unfrequent in individuals of good constitution, under the use of blisters, antimony, and the cautious induction of mercurial influence. Whereas, in the more cachectic subjects, I have witnessed instances of good recovery under the use of the iodine ointment, and the use of quinine and iron.

Pleuritis.—Instances of this disease which have terminated in pleuritic effusion are also not unfrequent.

Phthisis Pulmonalis.—147 cases are entered in the return, and of these 99 terminated fatally in hospital. I am convinced that of the 260 deaths recorded under the head "cachexia" that a certain proportion must have been "phthisis pulmonalis," admitted in the very advanced stages, but in which, from the stethoscope not having been used, the diagnosis was not established during life, and in which there was no examination of the body after death.

That phthisis pulmonalis is a common disease in all classes of the native community of Bombay cannot, I believe, be questioned. The admissions from this disease should be viewed in all those relations which are considered of importance in regard to it as occurring in other countries.

Diseases of the Heart—Asthma, Dropsical Affections.—There are only 6 cases of disease of the heart entered, and these in 1848. This small proportion of distinctly-recorded heart disease is no doubt owing to imperfect diagnosis, and neglect of the careful attention to physical signs. Of the 50 cases of asthma, and of the 185 of dropsical affections, and of the 34 deaths from rheumatism, it is reasonable to believe that cardiac disease has had to do with the pathology of several of them. In fact the diseases of the thoracic viscera, as occurring in the natives of Bombay, have yet to be studied,—that they are common, I have daily reason to be convinced of. They are among the important subjects of inquiry for which this hospital affords ample scope.

While assuming that some of the dropsical affections may have been dependent on cardiac disease, I must not forget to observe that there is no doubt that many of them were dependent on renal disease and albuminuria. The not unfrequent occurrence of Bright's disease among the inmates of this hospital is another of the interesting facts relating to pathology which has yet to be inquired into.

Hepatitis.—Acute 89, and chronic 127 admissions; of the former 14 deaths, and of the latter 60. Of the fatal cases, both acute and chronic, no doubt a considerable proportion were instances in which the inflammation had terminated in abscesses. Spirit-drinking, and to considerable excess, is common among those who sick relief in this hospital. Is it in these that the hepatic inflammations are found to prevail most? is an interesting question. My impression is that inquiry on this point will lead to an affirmative reply.

Dysentery.—578 admissions, 236 deaths. This great mortality is easily explained: the debilitated, the emaciated, the cachectic become readily the subjects of this disease, under the cold of the cold season, and the wet of the monsoon.

I have already written so fully on this disease in the Transactions of the Society that it is unnecessary that I should now enter upon it. There is one suggestion, however, that I would make, in regard to the morbid changes. I believe that though ulceration is the common consequence of continued inflammation of the mucous lining of the large intestines, and ought in gene-

ral to be expected to have taken place in all protracted cases of dysentery, the instances are far more numerous in natives than in Europeans, in which we shall find merely red discoloration, with some degree of thickening, and without ulceration.

Rheumatism.—1213 admissions. The study of this disease in the inmates of this hospital in relation to pericarditis and endocarditis has yet to be carefully attended to.

Scurvy.—The admissions 311, the deaths 59. These are chiefly of Government camp-followers sent from Aden, ineffective from scurvy, often associated with scorbutic ulcers. This disease in these instances, as in all others, is of much interest, in regard to the causes which induce it. They have not, I believe, in regard to Aden, been as yet determined with precision. At all events, they are still permitted to continue in operation.

Tubercular Leprosy.—150 admissions and 21 deaths afford ample scope for inquiry into the causes of this disease, and the phemomena which attend its course and its issue.

Cachexia.—321 admissions under this head, and 260 deaths. This term has been given to the numerous cases of advanced disease in which a more particular diagnosis had not been established during life, in consequence of imperfect history, on the individuals being admitted in an almost moribund state, and no examination having been made of the bodies after death. The entries under this head should, however, be much fewer. The condition on which the cachexia depends ought to be made out, and the disease termed accordingly.

This, then, completes the few imperfect remarks which I am able at present to make on these returns. My object has chiefly been to show that the hospital affords an ample field for the study of many circumstances connected with the diseases of the natives of Bombay, in regard to which we are as yet very imperfectly informed. We are so because we have not studied them, and I look upon the establishment of a Clinical School in connection with the hospital not only as a means of instruction for the students of the medical college, but as a means also of bringing about that close inquiry into the pathology and treatment of the diseases of the natives of this part of India, which I am convinced will lead to conclusions

very different indeed from the vague impressions which are at present generally received.

Surgical Practice.—The *Surgical* practice of the hospital, although by no means inconsiderable, has not been equal in amount to what would be expected in a hospital of similar size in European countries. This is doubtless in some measure due to the very general absence of machinery in the various employments of the people, a circumstance which explains the comparative rarity of severe accidents; but it chiefly, I believe, arises from the fact that a small proportion only of those persons suffering from diseases which require a surgical operation for their removal present themselves for relief; and of those who do seek advice under these circumstances, the greater number are unwilling to submit to the danger and pain inseparable from severe operative proceedings, unless for the relief of actual suffering.

It is not my purpose in the present report to enter at all fully into the consideration of the numerous points of interest bearing upon the pathology of the diseases treated, believing that this can be more satisfactorily attempted at a future period, when a longer experience will have served to render practical deductions more precise and accurate, and when the more important and interesting subjects can be discussed in separate contributions. At present I shall content myself with placing on record a few statistical facts, to which reference may be hereafter made, and offering a few general remarks upon the more common and important surgical diseases and injuries.

Affections of the Urinary Organs.—Under this head 99 cases have been admitted, of which number 8 have died, being a percentage of 8·8 upon the admissions.

Of the cases treated, a considerable number have consisted of stricture of the urethra, not unfrequently complicated with fistulous openings into the canal. There is probably no class of diseases more neglected by the native community generally than that now under consideration. Persons suffering from stricture of the urethra seldom apply for relief until the difficulty in emptying the bladder is extreme; nor, indeed, in many instances, until the retention of urine is complete. The majority of the cases have appeared to be the result of neglected venereal affections. Some

of the worst cases have occurred in Parsees, a class of the community of all, perhaps, the most frequently affected with syphilis, and have not unfrequently been complicated with openings into the canal. In some instances a considerable part of the glans has been destroyed by sloughing, and in this way the urethra has been opened; in other cases it would seem that the canal had given way behind a stricture situated in its anterior part, leading to extravasation of urine, and the formation of abscesses, upon the imperfect cure of which fistulous openings have been left. The treatment has not been satisfactory, as regards a permanent cure, from the circumstance that the greater number of patients insist upon leaving the hospital so soon as they are able to empty the bladder without actual suffering. Fistulous openings have at all times been very difficult to heal, and there has not been a single instance of a cure being effected when they have communicated with the urethra anterior to the scrotum. In one case, where there was a large aperture near the root of the penis, at its under part, much benefit was derived from the use of the actual cautery. The edges were touched occasionally with a heated wire, an elastic catheter being secured in the bladder. The size of the opening was in this way diminished, and in all probability closure would have ultimately taken place. The patient, however, finding himself free from suffering, was unwilling to remain longer in the hospital.

In no instance has it been necessary to puncture the bladder, or cut into the membranous part of the urethra, for the relief of retention of urine: perseverance in the use of the catheter, the attempts being often of long continuance, has invariably been attended with success. Force, with the view of making a new passage, as recommended by Mr. Fergusson in certain cases, has never been employed. I do not think the cases in which such practice is justifiable are common in this country (*i. e.* enlarged prostate). I can only call to mind one well-marked instance of retention from this cause, and in this case the bladder was emptied by means of the long catheter used by the late Mr. Liston.

Retention of Urine from blows on the perineum, attended with considerable hæmorrhage from the urethra, and often with

much discolored swelling behind the scrotum, has been common. I have occasionally failed in introducing a catheter in some of these cases, without the reason being apparent. This circumstance, however, coupled with the bleeding for the urethra, and the swelling of the perineum, has given rise to the supposition that the urethra was ruptured ; but under the use of fomentations, and the hip-bath, the urine has passed, and the patients have made a rapid recovery.

With the exception of one case, admitted in the early part of 1845, there has not been any instance of extravasation produced by injury. Several cases of sloughing of the scrotum, of the integuments of the penis, and of those over the pubes, occasioned by infiltration of urine, arising from the rupture of the urethra behind a stricture, have been treated. More frequently, however, sloughing of the scrotum has taken place without any extravasation of the urine, and we have had opportunities of examining these latter cases at all stages. In the first instance the scrotum becomes swollen, hot, and painful ; the swelling is soft and pitting, and evidently dependent upon the effusion of serum into the subcutaneous cellular tissue. At this stage there is often a good deal of febrile disturbance, and, indeed, in some instances, an accession of fever precedes the local symptoms. Should the disease not be checked at this period, the swelling rapidly increases, the pulse becomes frequent and small, the tongue brown and coated, and the skin hot and dry. Between the fifth and tenth days the temperature of the affected part of the scrotum suddenly falls, and in a few hours afterwards the cuticle begins to separate, the exposed cutis being in a sloughing condition ; the slough usually reaches to the upper third of the scrotum, where a line of separation quickly forms, and the lower two-thirds are thrown off, leaving the tunica vaginalis (its parietal layer) exposed. I believe the sac of this membrane is very rarely opened, and we have the better opportunity of observing this point from the fact that a large proportion of these cases are complicated with hydrocele. After the sloughs have separated, the surface of the tunica vaginalis is soon covered by a layer of granulations, a similar layer forming at the same time at and underneath the margin of the scrotum, from which the

slough separated. The two layers quickly unite, and as contraction of the granulating surface takes place, the scrotum is gradually drawn downwards over the testicles, until they are covered. In the cases I have witnessed there has been scarcely any new formation of skin. From the little notice of this disease to be found in surgical works, I imagine it is of more frequent occurrence in this country than in Europe; the number of cases treated during the period embraced in this report must have been very considerable. From the remarkable frequency with which it occurs in persons who are suffering from hydrocele, it may be presumed that the distention caused by the accumulation of fluid predisposes to the supervention of inflammation of a peculiar kind, the peculiarity chiefly consisting in the rapidity with which serum is effused into the cellular tissue.* The almost invariable termination in gangrene, when neglected, is probably due to the pressure of the fluid on the vessels upon which the skin is dependent for its nutrition. The treatment is simple, and, when early adopted, generally succeeds in arresting the progress of the disease; when the fluid effused is small in quantity, and obviously consists of serum, as indicated by the marked pitting, and absence of solidity, it has been the practice to make numerous punctures with the point of the lancet, and afterwards keep the part moist with a cold lotion, attention being at the same time paid to the state of the digestive organs, and to the administration of tonics. At a later stage, the swelling becomes firm, and loses in a great measure its pitting character. In such cases little benefit can be expected from punctures; it has consequently been customary under these circumstances to make a free incision in the median line, and to follow it by the use of cold or warm applications, as might be preferred by the patient.

Dislocations and Sprains.—The small number of cases admitted under this head cannot fail to excite surprise. During the year 1846 no case of recent dislocation was treated, either in the hospital or at the dispensary. The total number of cases treated during the four years has been as follows:—

Five dislocations of the humerus into the axilla.

* It should be stated, however, that these cases generally occur in persons who are out of health, frequently in those of intemperate habits.

One dislocation under the pectoral muscle.
Two dislocations of the hip upon the dorsum of the ilium.
One displacement of both bones of the fore-arm, backwards.
One dislocation of jaw.
One compound dislocation of the ancle.

In the reduction of recent dislocations very little difficulty has been experienced: it has never been found necessary to take blood from the arm, and but seldom requisite to administer antimony.

The number of admissions with injuries of this description does not afford any evidence of their comparative frequency, because many displacements are doubtless restored by native practitioners; whilst on the other hand not a few are permitted to remain unreduced, no application being made for relief; of the latter class of cases instances have been observed in almost every one of the larger articulations. Two cases of unreduced dislocation of the jaw have been under treatment for other diseases. The permanent deformity and inconvenience produced by this injury were much less evident than might have been expected, from the examination of such injuries in their recent state. Mastication and speech were to a certain extent impaired, the lower teeth, when the mouth was closed, passing in front of the upper row; but the digestion was not interfered with, and the articulation was sufficiently distinct to render conversation easy.

Dracunculus.—The great prevalence of guinea-worm in the island of Bombay has on several occasions attracted considerable attention.* During the four years now under consideration 281 cases have been admitted into hospital, of which number three cases have terminated fatally. Although the proportion of admissions from this disease to the total hospital admissions is very considerable, yet it affords but a faint idea of the large number of persons who suffer from this distressing complaint. Nor does the mortality above stated enable a correct opinion to be formed of the serious nature of the disease, because many deaths which are immediately occasioned by some other affection, may be traced to it as the remote cause. As will be presently shown, there is probably no more frequent exciting cause of tetanus than

* Vide Transactions of Medical and Physical Society, *passim*.

guinea-worm. The following Table will show the number of admissions in each month for nine years, from 1838 to 1847 :—

Table showing the Admissions and Deaths from Guinea-Worm, during each Month, from 1838 to 1847.

Months.	From 1838 to 1844 (6 years).		From 1845 to 1847 (3 years).		Total Admitted.	Total Dead.
	Admissions.	Deaths.	Admissions.	Deaths.		
January.....	4	..	5	1	9	1
February	3	..	6	..	9	..
March	9	..	8	..	17	..
April	14	..	10	..	24	..
May.....	16	..	26	..	42	..
June.....	23	..	20	..	43	..
July	29	..	32	..	61	..
August.....	30	..	25	..	55	..
September.....	19	..	24	..	43	..
October.....	17	..	12	..	29	..
November.....	13	1	7	..	20	1
December	6	..	9	..	15	..
Total....	183	1	184	1	367	2

From this Table the prevalence of the disease during the hot and monsoon months will be apparent. Of the 367 cases collected, 244 were admitted during the five months from May to September, the maximum of admissions being in the months of July and August. The opinion is, I believe, generally entertained that the monsoon months are remarkable for the invasion of this troublesome malady. It would appear, however, that the hot month of *May*, during which rain seldom falls, is not without its full share, there having been about the same number of admissions in that month as in June and September, and only thirteen less than in the month of August.

The manner in which the worm presented itself was subject to considerable variation. In many instances a small vesicle form-

ed, upon the rupture of which one extremity of the worm protruded. In some cases the animal was first felt under the skin, as a well-defined, hard, tortuous line, unaccompanied by pain or uneasiness. In another class of cases diffused swelling of one of the extremities occurred suddenly, without any apparent cause, and this often continued unchanged for many days. At length a small abscess formed, burst, and the worm protruded. In not a few instances it manifested its presence by exciting severe inflammation, attended with grave constitutional disturbance, and ending in the formation of large abscesses, or occasionally of large sloughs.

It would appear that there is scarcely a part of the body protected from its ravages. The lower extremities, however, are out of all proportion the most frequently affected. But it has been found, on post-mortem examinations, in the substance of the liver, and other internal organs. In one remarkable case a guinea-worm was seen in the middle of the muscles of the thigh, after the limb had been removed by the flap operation.

The treatment when the worm has fairly shown itself is sufficiently evident, but an extended series of observation, with the view to ascertain the circumstances which favor its production, is still a desideratum. It is, I believe, undoubted, that even in the small island of Bombay, some localities are much more infested by it than others; whilst in many parts of the Presidency it is almost unknown.

It would be important to ascertain the relative frequency of its occurrence in peculiar castes, *i. e.* in people who follow particular employments, and live on particular articles of food.

Fractures.—The total number of fractures treated has been 207, of which 144 have been simple, and 62 compound. The situation of each fracture will be apparent from the following Table:—

Table showing the number and nature of the Fractures treated.

	Simple.								Compound.							
	1845		1846		1847		1848		1845		1846		1847		1848	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Of the Skull	2	2	1	..	2	2	..	..	..	..	2	1	1	..	1	1
Thigh — Right	4	2	1	..	2	..	4	..	..	..	2	..	1	..	1	..
Thigh — Left	5	..	4	1	3	..	6	..	..	..	..	..	..	..	2	1
Leg — Right	5	1	9	..	7	..	5	..	2	..	6	2	4	1	4	2
Leg — Left	1	..	4	..	2	..	4	1	6	3	6	..	4	1	2	1
Arm — Right	5	1	2	..	4	..	..	..	1	..	..	..	..	..	1	1
Arm — Left	2	1	3	..	4	..	4	..	..	..	..	..	1	..	2	1
Fore-arm — Right	3	..	5	..	..	..	1	..	..	..	2	..	..	..	..	..
Fore-arm — Left	6	..	4	..	2	..	3	..	1	..	1	..	1	..	1	1
Clavicle — Right	2	..	3	..	1	..	3	..	..	..	..	..	..	..	..	..
Clavicle — Left	3	1	..	..	2	..	2	..	..	..	..	..	..	..	..	..
Scapula — Right	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scapula — Left	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nose	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Lower Jaw	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..
Fingers and Toes	..	..	..	..	3	..	2	..	..	..	..	..	1	1	4	1
Patella — Right	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Patella — Left	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
	39	8	38	1	32	2	35	1	11	3	19	3	14	3	18	9

From this Table it appears that there have been treated—

Of the skull	9	fractures.
„ thigh	35	„
„ leg	71	„
„ arm	28	„
„ fore-arm	30	„
„ clavicle	16	„
„ scapula	1	„
„ nose	1	„
„ lower jaw	3	„
„ fingers and toes	12	„
„ patella	1	„
Total	207*	

* The successful management of fractures occurring amongst the hospital-frequenting classes of the native community in Bombay requires the exercise of no

Fractures of the Skull.—The fractures of the skull have been for the most part through the base, and generally complicated with rupture of a vessel, and effusion of blood upon the surface of the brain. Fractures of the arch have, however, occasionally occurred, in some cases with depression. In one of the three cases in which the depression was marked, the injury was inflicted by a blow from a goldsmith's hammer; in another by the handle of a hunting-whip* ; in the third case by a kick from a horse. The two former cases terminated fatally, the latter recovered without the occurrence of any bad symptoms.

Of Thigh.—The fractures of the thigh have almost uniformly been treated in the straight position, with the long splint. The perineal band is not in general well borne, and after the first few days it is usually loosened by the patient. In the greater number of cases, where the fracture is below the middle third, this is, I believe, of little consequence,† but in fractures high up it will almost cer-

little patience. For the first few days, whilst inflammatory symptoms are present, the patients are sufficiently quiet, but no sooner have these symptoms, and the pain attending them, subsided, than they are anxious to move about. Remonstrance and advice are of little service, and the Surgeon may consider himself fortunate if constant movement is the only difficulty he may have to contend with.

* The subject of this injury was a Seedee, who, in a scuffle with an European constable, was struck over the right parietal bone with the handle of a hunting-whip, the brass part of which was shaped like a hammer. The end passed through the scalp, and drove a portion of bone into the substance of the brain. The preparation showing the fracture is preserved in the museum of the Grant College—Preparation No. 372.

† Within the last few months, I have in some cases dispensed with a perineal band, and substituted a weight attached over a pulley to the lower part of the limb, after a plan which, I am informed, is adopted at some of the London hospitals. My experience of this plan is not yet sufficiently long to justify me in offering an opinion upon its utility. Fractures of the leg, particularly those in which the tibia only was broken, have been mostly placed upon the outer side in the semiflexed position with one splint. Such cases thus treated terminate very satisfactorily, and I believe it is the position most comfortable to the patient. Oblique fractures in which there is a tendency to shortening and displacement, cannot, however, be managed in this way; and it would be almost difficult to enumerate the different methods to which I have been occasionally obliged to resort. In many cases Liston's splint has answered very well; in others it has failed, owing to the impossibility of keeping up effectual extension. The straight position, with a short splint on either side, the limb resting on the heel, has appeared the more preferable mode of managing some fractures. In a few cases of very oblique fractures, when other methods had failed, I have succeeded in preventing the riding of

tainly result in shortening of the limb. At the end of the third week I have been in the habit of removing the splint, and applying a bandage soaked in a solution of gum Arabic.*

The management of the other fractures noticed in the Table has not been attended with any circumstance worthy of notice.

Syphilitic Affections.—The admissions and deaths from venereal affections have been as follows :—

	Admitted.	Died.
Primary Syphilis	1001	18
Secondary	683	34
Gonorrhœa	175	..

In addition to the cases admitted into the hospital, a large number of patients have been treated at the dispensary.

The following Table shows the relative number of each of the principal castes affected amongst the admissions for 1846—1848, and for the years 1846, 1847, 1848, at the dispensary :—

the fragment by the use of a miniature thigh splint, counter-extension being made from the thigh a little above the knee.

* I am not aware whether gum or starch bandages are much employed in this part of India ; they were not formerly used in the native hospital here. I cannot but think they are a most valuable addition to the usual means of treating fractures.

HOSPITAL.—*Table showing the Castes affected with Syphilis, during the Years* 1846 *and* 1848.

	Hindoo.				Mussulman.				Christian.				Parsee.				Women.				Total.	
	1846.		1848.		1846.		1848.		1846.		1848.		1846.		1848.		1846.		1848.			
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Syphilis, Primary	52	3	62	..	63	..	73	2	54	..	65	..	14	..	12	..	35	..	35	1	465	6
Ditto, Secondary.....	41	3	79	3	58	1	68	4	49	2	78	2	3	..	7	..	32	2	20	4	435	21
	93	6	141	3	121	1	141	6	103	2	143	2	17	..	19	..	67	2	55	5	900	27

DISPENSARY.—*Table showing the Castes affected with Syphilis, for the Years* 1846, 1847, *and* 1848.

Year.	Hindoo.	Mussulman.	Christian.	Parsee.	Women of all Castes.	Grand Total.
1846. Syphilis, Primary	97	102	17	14	11	241
1847. Syphilis, Primary	107	103	16	29	29	284
1848. Syphilis, Primary	152	111	23	28	13	327
Total....	356	316	56	71	53	852
1846. Secondary Syphilis.....	71	38	9	6	16	140
1847. Secondary Syphilis.....	60	65	12	17	16	170
1848. Secondary Syphilis.....	139	78	11	12	18	258
Total ...	270	181	32	35	50	568

The deaths have chiefly occurred in persons worn down by long continued secondary syphilis, improperly treated before admission by the excessive and too frequent use of mercurial preparations. The state of the patients thus affected, on being brought to hospital, has presented much variety : in some instances no local affection was present, the debility apparently depending upon general derangement of the system. In other cases, hectic symptoms, the result of local disease, such as caries and necrosis of bone, sloughing ulcers, &c. were marked, and under which the patients rapidly sink.

The large number of cases of this disease treated is not a favorable circumstance as regards the moral habits of the lower classes of the people; but it should be kept in mind that a considerable proportion of the cases occur in the inhabitants of other parts of India, and who only visit Bombay at particular seasons, for the purpose of trade, or in search of employment.

In the treatment of syphilitic affections, whether primary or secondary, mercury has been but rarely given to the extent of affecting the mouth. The class of patients suffering from this disease—at all events that portion who seek relief as hospital patients—are, as a general rule, unfit subjects to undergo a mercurial course. The non-mercurial mode of treatment of the primary symptoms is quite satisfactory, but whether cases thus treated are more frequently followed by the secondary form of the disease than when mercury has been administered, is a point upon which the statistics of the hospital will not afford any trustworthy information. My impression is that severe secondary symptoms occurring in cases where the primary sores have been treated in the hospital are extremely rare. I am, however, an advocate for the administration of mercury in the greater number of primary sores, when it is not contraindicated by the presence of a scrofulous or cachectic state of the system, because I believe that in some instances it hastens the cure of the primary, and in all that it diminishes the danger of the occurrence of secondary symptoms.

Wounds and Contusions.—The following Table exhibits the situation and nature of the wounds and contusions treated during the four years.

	Incised Wounds.								Punctured.								Lacerated.								Contusions.								Contused Wounds.								Total.	
	1845		1846		1847		1848		1845		1846		1847		1848		1845		1846		1847		1848		1845		1846		1847		1848		1845		1846		1847		1848			
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Head, neck, & face.	1	..	6	..	5	..	7	1	1	..	..	..	2	..	3	..	3	3	8	..	17	2	14	1	60	2	60	..	50	..	35	..	..	..	..	..	69	1	60	4	401	14
Chest, penetrating.	..	..	..	..	..	..	1	..	1	1	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	34	..	..	..	..	..	..	..	..	..	..	..	39	1
Abdomen, do..	..	..	1	..	..	..	1	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..	1	..	..	..	16	2
Trunk	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35	2	57	6	36	..	60	..	..	..	..	..	1	..	1	..	192	8
Upper extremities .	12	..	4	..	1	..	4	..	3	..	1	..	3	..	1	..	14	..	4	..	6	..	3	3	90	..	42	..	25	1	27	..	..	..	..	..	15	..	17	..	272	4
Lower do.. ..	5	..	4	..	2	..	4	..	1	..	2	..	2	..	3	..	14	3	5	..	11	2	13	..	70	..	58	1	58	..	45	..	..	..	..	..	34	5	32	..	363	11
Total....	18	..	15	..	9	..	18	1	9	3	4	..	8	..	7	..	31	6	17	..	35	4	30	4	255	4	217	7	213	1	167	..	..	..	..	..	120	6	110	4	1283	40

NOTE.—It will be observed that there is some difference between the numbers entered in this Table and those treated under a somewhat similar head as contained in the General Return. This discrepancy depends upon the omission in the Table of contusions not particularly prominent in any one part of the body, and therefore entered as general. Sprains are also transferred to the table of dislocations.

Of the total number treated, viz. 1283, 1082 were either contusions or contused wounds. A large proportion of the persons suffering from these injuries were brought by the police, having been engaged in affrays in the public streets, or injured by the wheels of carts or carriages. It should be mentioned that by police custom all persons who meet with injury, however slight, whether accidentally received or feloniously inflicted, are immediately brought to the hospital, in many instances not only without the consent of the individual, but in direct opposition to his wishes. Under such circumstances, it of course follows that many of these injuries were of a very unimportant character. It is perhaps a singular circumstance that during the four years there has been no instance of division or wound of any of the large vessels of the extremities, necessitating the application of ligature; but there was one interesting case admitted during the year 1846, in which the femnal artery, after a wound in the groin, was opened by ulceration. Hæmorrhage suddenly came on during the night, and the boy died before assistance could reach him.

The remarkable frequency with which even slight wounds are followed by tetanus is a circumstance of much interest, and one which will be again referred to in considering the latter disease. Of the cases of tetanus treated during the year 1847, six were attributed to abscesses and ulcers of the feet and legs, caused by the irritation of guinea-worm; one to a small wound of the temple, another to a small wound of the sole of the foot, and a third to boring the ear—a native remedy for swelled testicle. Indeed, it has been observed that no wound, whether large or small, is protected from this dreadful complication; it has occurred in every kind of injury,—from a mere abrasion or contusion to the wound left after an amputation of the thigh. It would seem also that the severity of the injury has no relation to the violence of the tetanic symptoms, the most fearfully rapid cases having occasionally followed a mere abrasion, whilst some of the recoveries have occurred in instances where the disease was occasioned by severe compound fractures, with extensive laceration of the soft parts.

Ulcers.—Under this head there has been the large number of 741 admissions, 114 deaths. The worst cases have been received

from Aden, affecting persons employed in the erection of fortifications at that Station. The frequent occurrence of a peculiar form of scorbutic ulcer, in persons residing in the neighbourhood of Aden and the Red Sea, has given rise to the appellation of "Aden" or "Yemen Ulcer," by which name the disease now adverted to is generally known. Several very good descriptions of Aden ulcer will be found in the Society's Transactions.* To give an idea of the extent to which this disease prevails amongst the workmen at Aden, I may mention that our admissions during the four years have fallen little short of two hundred. There are two points connected with this formidable disease deserving of careful investigation: 1st, the cause or combination of causes that lead to the peculiar derangement of the system, in which a scratch or an abrasion becomes a dangerous sore; 2ndly, the circumstances under which, and the stages at which, recourse should be had to change of climate.

It is, perhaps, doubtful, whether peculiarity of diet can be assigned as the efficient cause, although the difficulty of procuring vegetables at Aden has given rise to the belief that the scorbutic diathesis, which is almost invariably co-existent, is induced by the want of a proper proportion of vegetable food. The men, however, do not admit that the quantity of vegetables consumed by them is less than they were in the habit of using previous to their departure for Aden.

Of the men sent to Bombay for change of air, there is no question that a very large number die. When received into hospital the ulcers are for the most part in a sloughy condition, in many cases presenting the characters of the worst form of sloughing phagedæna. That in a considerable proportion of

* Vide Transactions Medical and Physical Society of Bombay, No. III. page 84, No. IV. page 94. The name of Aden or Yemen ulcer is obviously inappropriate, as the disease is by no means confined to these localities. The so called Aden ulcers does not appear to differ either in its character or in its exciting causes from the form of ulcer to which the inhabitants of India (*i. e.* sepoys) have been found liable when serving in foreign Stations. During the campaign in Java and Ceylon, ulcers impaired the efficiency of the sepoys in a greater degree than any other affection; whilst on the Tenasserim Coast, and in the Straits, they have at all times been very formidable. In Scinde a similar form of ulcer is exceedingly common at many Stations, even at the present time. (Vide Appendix Transactions Medical and Physical Society, No. IX.)

these cases this could not have been the condition of the ulcers on leaving Aden, is evident; for had it been so, the individuals would not have survived the voyage. From the statement of the men themselves, there would seem reason to believe that many ulcers, which had been previously healthy and healing, took on a sloughing action after embarkation. The causes of this unfavourable change, assigned by the men themselves, were the contact of salt water, with which they were constantly wet, and exposure to cold on the deck of the steamer. The fact that the men brought down to Bombay by steamer often disembark in a worse condition than when received on board, will not, I believe, admit of dispute. It, therefore, becomes of much interest to ascertain 1st, whether the men are embarked at the most favourable periods, both as regards the condition of the ulcers, and the season of the year; and, 2ndly, whether it is practicable to afford them greater protection from the cold and wet during the voyage.

Under any circumstances, the aggregation of a large number of persons affected with ulcers in a more or less sloughing state, within the limited space it is possible to allot for their accommodation on board ship, cannot but be viewed as a great evil; and it is an evil for which no amount of attention to their comfort will afford a remedy. The number of men disembarked from the steamers was often very large : we have on several occasions received fifty at one time. It is of course quite impossible that so large a number of persons can have their wants properly supplied by the medical attendants of the vessel; and I believe it is not customary to increase the number of attendants on their account. It may, therefore, be a matter for consideration, whether more injury is not inflicted by embarking so many persons at one time than would be sustained were a proportion of them kept back until another opportunity for their transmission might occur, even if this should involve a delay of several weeks or months.

Diseases of Blood Vessels.—It will be observed that there is no heading in the general return for aneurism, but it must not be supposed that this omission warrants the inference that aneurisms do not, or very rarely, occur amongst natives.

Five preparations of aneurism have been added to the

Museum of the Grant College, all taken from natives, during the last year and a half. In addition to the cases of aneurism of the aorta mentioned by Dr. Morehead,* there has been one fatal case of aneurism of the left carotid within the last year.†

Tetanus.—There is perhaps no circumstance in the history of the period embraced by this report of more painful interest than the frequent occurrence of tetanus. Some of our most promising amputations have been fatal from this cause, and it has destroyed not a few persons who had met with trivial and otherwise unimportant injuries. During the four years 114 persons have been admitted with this disease, in addition to which about thirty or forty individuals have been attacked whilst in hospital, thus amounting, in round numbers, to about 150 cases treated. Of the 112 admissions, 76 cases have terminated fatally, being a per-centage of 68·3.

Table showing the Number of Cases of Tetanus admitted in each Month of the Year for four Years, from 1845 *to* 1848.

Months.	1845.		1846.		1847.		1848.		Total.	
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
January	2	1	3	3	3	1	1	..	9	5
February	2	2	3	1	1	..	5	3	11	6
March	1	..	3	2	2	1	4	3	10	6
April	2	..	2	2	1	1	4	3	9	6
May	3	3	2	1	3	2	4	..	12	6
June	3	2	3	2	4	3	..	1	10	8
July	2	1	2	3	2	3	..	..	6	7
August	2	1	1	1	5	2	2	1	10	5
September	..	..	2	1	1	2	2	2	5	5
October	..	..	4	2	2	1	2	2	8	5
November	4	3	1	2	1	1	3	2	9	8
December	2	..	4	4	5	1	4	4	15	9

Total admitted, 114; died, 76.

* Vide Medical Gazette, Dec. 31st 1847.

† An attempt has been recently made to show that diseases of the heart and arteries are extremely rare amongst the natives of India. (Structure and diseases of the blood vessels. By Edwardes Crisp.) The statement in this work is founded upon

The cases of traumatic tetanus have been more numerous than those of the idiopathic form, but there has not been the same disproportion between the two forms that is usually observed in European countries. Thus of 82 cases admitted between the years 1845 and 1847, 37 were idiopathic and 45 traumatic, leaving a difference of only 8 cases during the space of three years. It may, however, be questioned, whether the difference was even so great as just stated; for many of the cases marked traumatic occurred in persons suffering from guinea-worm, and the symptoms were attributed to the irritation produced by it; but when we keep in mind the great prevalence of guinea-worm at particular seasons, it may be reasonably assumed that at least in some of these cases its presence was merely coincidental, and is not to be viewed as the exciting cause of the tetanic symptoms.

Hernia.—The admissions from hernia have amounted to 13—all inguinal. Of this number 4 cases required division of the stricture: two of these cases recovered, the remainder died from peritonitis. Although hernia is by no means an uncommon disease amongst various classes of the inhabitants of Bombay, yet one form (femoral hernia) is undoubtedly rare, no case having been brought to the hospital during the four years embraced in this report. The small number of 4 cases of strangulated hernia admitted in a period extending over four years leads to the inference that hernial protrusions become less frequently strangulated in the inhabitants of this than in those of other countries. I am of opinion that such an inference would be correct, although not to the extent that might be supposed from the paucity of admissions into this hospital. When it is remembered that a very small proportion of persons affected with this complaint take the trouble to provide, or are aware of the benefit of providing themselves with trusses, it cannot but excite surprise that cases of strangulated hernia should not be more common.

a report brought to England by a Mr. Webber, who visited Bombay in the year 1845. Had the author of the work under notice referred to the records of Indian diseases, in place of trusting to the hearsay evidence of a casual visitor, he would not have committed so great an error. For cases of aneurism and disease of the heart amongst natives, vide Madras Quarterly Medical Journal, Vol. V. p. 165; Transactions of Medical and Physical Society of Calcutta, *passim*; Transactions of Medical and Physical Society of Bombay; Indian Journal of Medical Science.

Hydrocele.—The cases of hydrocele treated in the hospital have been comparatively few in number, it not being customary to admit as in-patients persons suffering from this disease. At the dispensary, however, a large number of cases, about 200, have been successfully operated upon. The operation performed has been that first recommended by, I believe, Mr. Martin, of Calcutta; the fluid having been drawn off by a small-sized trochar and canula, a solution of iodine was injected, and permitted to remain. The quantity thrown into the tunica vaginalis has seldom exceeded 2 drs. There can be no question of the superiority of this mode of procedure over the operations formerly and still sometimes performed. Failure is comparatively rare, and in only a small proportion of cases is it necessary that the operation should be repeated.

Scrofulous Diseases.—It will be noticed that there is not any heading for scrofula in the return, scrofulous diseases having been classed as abscesses, ulcers, diseases of bones, &c. I am not, therefore, in a position to give even an approximate of the number of cases treated. But I have little hesitation in expressing my belief that those forms of scrofula which usually fall under the care of the surgeon (*i. e.* diseased bones, diseased joints, &c.) were, in comparison with the prevalence of this disease in many parts of England, few in number. The same remark will also, I think, apply to the patients who attend as out-patients, a considerable portion of whom are women and children.

Hydrophobia.—Of this dreadful disease there have been two admissions, both, I need hardly say, fatal. In one of these cases the inhalation of chloroform was perseveringly used, with great relief, but without apparently having the effect of delaying the fatal termination.*

In concluding this very imperfect report, I would wish to make one remark in reference to a peculiarity alleged to exist in natives of this country, bearing upon the subject of operative surgery, and the management of severe accidents. It is a very commonly-received opinion that Hindoos, from the simple nature of their diet, their abstemious habits, and other circumstances,

* Since this report was drawn up, three other cases of hydrophobia have been treated in the hospital. In two of these chloroform was also used.

are much more favourable subjects for the performance of surgical operations than the inhabitants of other countries (England for example) ; and that they recover from injuries which would be fatal to Europeans. Statements to this effect may be found scattered throughout almost all the journals. Not only does experience lead me to doubt the accuracy of this opinion, but actually convinces me that the converse of it is the truth : so far from natives recovering from injuries which would be fatal to Europeans, I am firmly of opinion that they sink under injuries from which Europeans would recover without difficulty ; and further, that operative surgery is less successful amongst them than it would be, under the same circumstances, amongst Europeans. I would wish it, however, to be understood, that my experience is confined to the class of persons who are admitted into this hospital, and who are for the most part residents in Bombay : whether experience amongst the inhabitants of rural districts, or amongst the better-fed class of sepoys, would warrant the same conclusion, I am unable to say. It would appear, however, from the reports of the late campaign in the Punjaub, that surgical operations amongst the native troops were less successful than those performed upon Europeans.

Return of Diseases treated in the Jamsetjee Jejeebhoy Hospital for the four Years from 1845 *to* 1848.

Diseases.	1845.		1846.		1847.		1848.		Total.		Percentage.
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Deaths on Admissions.
Apoplexy	4	4	3	2	8	8	6	6	21	20	95·2
Asthma	8	2	16	2	15	1	11	1	50	6	12·0
Cholera, Biliosa	..	..	..	..	2	..	3	..	5	..	..
„ Spasmodic	85	60	118	76	3	2	1	1	207	139	67·1
Cutaneous Diseases	195	14	68	..	106	..	109	..	478	14	2.9
Cachexia	36	28	41	21	151	98	163	113	391	260	66·4
Diarrhœa	108	46	143	59	115	41	107	36	473	182	38·4
Dropsical Affections	60	31	51	30	30	12	44	14	185	87	47·0
Dysentery	176	89	165	60	100	32	137	55	578	236	40·8
Dislocations and Sprains	18	..	3	..	4	..	5	..	30	..	..
Delirium Tremens	7	2	8	..	6	..	14	..	35	2	5·7
Dracunculus	49	..	95	..	59	1	78	2	281	3	1·0
Fractures	50	11	51	4	42	5	42	8	185	28	15·1
Fevers — Remittent	122	53	110	42	150	44	195	56	586	195	33·2
Fevers — Intermittent	344	14	275	20	317	5	232	7	1,168	46	3·9
Gonorrhœa	60	..	36	..	42	..	37	..	175	..	..
Hepatic Affections — Acute	24	4	24	6	17	2	24	2	89	14	15.7
Hepatic Affections — Chronic	24	8	33	15	42	18	28	19	127	60	47·2
Inflammations — External	43	2	69	5	108	3	121	7	341	17	4·9
Inflammations — Cephalic	1	..	7	1	1	1	4	2	13	4	30.7
Inflammations — Thoracic	96	25	140	40	85	17	128	15	459	97	21.1
Inflammations — Abdominal	11	5	27	6	3	..	15	3	56	14	25.0
Affections of the Urinary Organs	13	2	24	4	29	..	33	2	99	8	8.0
Ophthalmic Affections — Acute / Chronic	56	..	26	2	24	..	26	..	132	2	1.5

Return of Diseases treated in the Jamsetjee Jejeebhoy Hospital (continued).

Diseases.	1845.		1846.		1847.		1848.		Total.		Percentage.
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Deaths on Admissions.
Phthisis Pulmonalis	34	20	38	29	29	17	46	33	147	99	67.3
Rheumatism	302	16	284	7	327	5	301	6	1213	34	2·8
Spleen, disease of	18	3	7	..	4	..	4	1	33	4	12·1
Syphilis { Primary	231	7	219	3	292	3	259	5	1001	18	1·7
Syphilis { Secondary	87	9	181	8	173	6	242	11	683	34	4·9
Small Pox	32	11	62	32	35	12	61	24	190	79	41·5
Scurvy	68	14	117	20	37	7	89	18	311	59	18·9
Ulcers	199	38	225	40	114	9	203	29	741	116	15·6
Wounds and Accidents	313	13	261	7	403	12	348	9	1325	41	3·0
Rubeola	..	..	..	..	2	..	1	..	3	..	..
Varicella	..	..	3	1	2	..	1	..	6	1	16·6
Hœmoptysis	..	..	..	..	2	..	1	..	3	..	..
Icterus	..	..	..	..	3	..	7	2	10	2	20·0
Dyspepsia	8	..	19	2	23	1	17	..	67	3	4·4
Colica	27	..	..	..	26	..	15	..	68	..	..
Obstipatio	3	..	1	..	6	..	6	..	16	..	..
Cephalalgia	12	..	..	..	8	..	5	..	25	..	..
Paralysis	38	5	47	9	34	7	32	5	151	26	17·2
Amentia	3	..	1	..	2	..	9	..	15	..	..
Mania	..	..	..	..	7	..	10	..	17	..	..
Epilepsia	..	..	1	..	1	..	3	..	5	..	..
Beriberi	..	..	..	..	3	3	1	1	4	4	100·0
Odontalgia	..	..	2	..	2	..	..	..	4	..	..
Arthritis	1	..	..	..	6	..	..	..	7	..	..

Other Diseases	Orchitis	..	..	15	..	10	..	7	..	32	..	..
	Fistula in Ano	3	..	..	..	1	..	4	..	8	..	..
	Ambustio	9	2	7	..	8	..	13	..	37	2	5·4
	Injury of Head	3	3	2	1	2	1	3	1	10	6	60·0
	Lepra Tuberculosa	..	..	40	..	57	7	53	14	150	21	14.0
	Cynanche Parotidea	..	..	1	..	4	..	1	..	6	..	..
	,, Tonsillaris	..	..	1	..	2	..	1	..	4	..	..
	Hœmorrhois	12	1	14	..	18	..	9	..	53	1	1.8
	Hernia, Ingl. Strangulated	..	..	2	1	1	..	1	1	4	2	50.0
	Hernia	5	..	1	..	2	..	1	..	9	..	..
	Hydrocele	4	..	6	..	8	..	4	..	22	..	..
	Coxalgia	..	..	..	..	4	2	1	..	5	2	40.0
	Necrosis	..	..	..	..	3	1	7	..	10	1	10.0
	Neuralgia	4	..	3	..	5	..	14	..	26	..	..
	Otitis	22	2	16	3	10	1	15	1	63	7	11·1
	Old Age	3	3	17	6	9	6	9	4	38	19	50·0
	Tetanus	27	18	32	21	25	20	28	19	112	78	69·6
	Tumours	6	2	1	..	5	1	11	..	23	3	13·0
	Abortion	1	..	..	..	1	1	..	..	2	1	50.0
	Ebrietas	37	..	9	..	22	..	6	..	74	..	..
	Elephantiasis	6	..	1	..	4	..	4	..	15	..	..
	Gangrene	2	2	1	1	8	4	11	8	22	15	68·1
	Poisoning	22	5	14	2	19	2	44	..	99	9	9.0
	Ptyalism	3	1	6	1	3	..	4	..	16	2	12·5
	Parturitio	5	1	2	1	9	2	3	..	19	4	21·0
	Snake Bite	..	..	..	..	1	..	..	..	1	..	..
	Croup	..	..	..	..	..	..	2	1	2	1	50.0
	Hydrophobia	..	..	..	..	..	..	2	2	2	2	100·0
	Menorrhagia	..	..	..	..	..	..	1	..	1	..	..
	Ovarian Disease	..	..	..	..	..	..	1	..	1	..	..
	Scirrhus of Pylorus	..	..	..	..	..	..	1	1	1	1	100.0
	Diseases of the Heart	..	..	..	..	..	..	6	4	6	4	66·6
	Injury of Perineum	1	..	..	..	..	..	..	..	1	..	..
	,, Spine	1	1	..	..	..	..	..	..	1	1	100·0
	Defloration	1	..	2	..	..	..	..	..	3	..	..

Return of Diseases treated in the Jamsetjee Jejeebhoy Hospital (continued).

Diseases.	1845.		1846.		1847.		1848.		Total.		Percentage.
	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Admitted.	Died.	Deaths on Admissions.
Other Diseases..... Caries	..	..	3	..	1	..	..	..	4	..	..
Fungous Growth in Antrum	..	..	1	..	..	..	..	..	1	..	..
Leucorrhœa	..	..	2	..	..	..	..	..	2	..	..
Malignant Disease of Jaw	..	..	1	1	..	..	..	..	1	1	100·0
Suicide by Hanging	..	..	1	..	..	..	..	..	1	..	..
Vertigo	..	..	3	..	..	..	..	..	3	..	..
Dentition	..	..	1	..	..	..	..	..	1	..	..
	3142	577	3215	591	3242	420	3501	549	13051	2131	16·3

Article VI.

On the Analysis of Opium for Medicinal Purposes. By Herbert Giraud, M. D., Edin., Professor of Chemistry and Materia Medica in the Grant Medical College, Bombay.

Presented December 1850.

It is generally admitted that the Chinese, the great consumers of Opium in the East, estimate the value of the drug by its possessing certain characters, indicating its superiority for the purposes of smoking, that have no reference to the proportion of its active ingredients, and which, therefore, do not denote its value as a medicinal agent. The Chinese dealer, in the selection of Opium, directs his attention to certain physical characters, such as colour, odour, consistence, and the absence of mechanical impurities; and by very simple processes* he is able to determine the value of the drug with sufficient accuracy for his purpose. He never attempts to separate the active principles of the drug, knowing nothing of their nature or proportions; and frequently preferring a sample containing a smaller quantity of morphia, as Malwa Opium, to one containing a larger quantity, as Turkey Opium; just as the wine-merchant never has recourse to the retort or the still to determine the goodness of his wine; for, provided it possesses the esteemed "dryness," "body," and "bouquet," he is indifferent to the exact amount of alcohol it contains.

But for the purposes of the druggist and physician, the value of Opium can only be determined by the proportion of active principles, and especially of morphia, that it can be made to yield. It is therefore of much importance to devise a method, at once simple, speedy, and easy of execution, by which this object

* The Chinese judge of a sample of Opium by the quantity and appearance of smokeable extract they obtain from it. Thus they call Patna and Benares Opium 45 to 50 touch; Malwa, 70 to 75; Turkey, 53 to 57.

may be attained ; the more so as Opium is not only subject to such large and numerous adulterations, but as variations in the proportions of its active principles undoubtedly depend on soil, climate, season, and mode of preparation ; so that, without some preliminary chemical examination, the druggist who manufactures the salts of morphia may, in his extensive purchases of Opium, experience considerable pecuniary loss, and the physician may employ opiates of variable and uncertain strength.

Christison says that he has known the most experienced persons egregiously deceived in trusting to external characters ; and he mentions an instance in which one of the first houses in London supplied a skilful manufacturer in Edinburgh with nearly two hundred-weight of Opium, which was believed by both parties to be of the finest quality for making muriate of morphia, but which, nevertheless, did not yield above two-thirds of the average produce.

Chemists have long laboured assiduously to devise some method of estimating the medicinal value of Opium, that shall combine sufficient accuracy with simplicity ; but, owing to the very complex composition of the drug, and the intimate manner in which both morphia and narcotine are combined with resin, when thrown down by precipitants, very partial success has hitherto attended their efforts ; so much so, that Christison states that " no method, at once trustworthy and easy, has hitherto been suggested."*

Christison, moreover, says, " I am inclined to think the only sure criterion is one neither easy, expeditious, nor applicable on a sufficiently small scale for ordinary use, namely, the preparation of pure muriate of morphia by Dr. Gregory's process.

If there existed any constant rates between the amount of morphia and that of meconic acid in Opium, little difficulty would be presented in determining the proportion of the former, from the ease with which the latter may be quantitatively estimated. Such a relation was formerly asserted by Berthemot,† but has been disproved by all subsequent analysts of Opium.

* Dr. Christison's Dispensatory, 2nd edition, p. 680.

† Journal de Pharmacie, xxiv. 445.

Berthemot's method* for separating the morphia, as hydrochlorate, by chloride of calcium, is defective; both because the hydrochlorate is estimated as a very impure crystalline mass, and because much of the morphia is left in the mother liquor.

The process commonly known as Robiquet's† was formerly much employed in the Bengal factories; but as it consists in disengaging the morphia and narcotine together, by means of magnesia, it is not applicable to the determination of the medicinal value of Opium.

The method of the Edinburgh Pharmacopeia,‡ by which a watery solution of Opium is precipitated by carbonate of soda, is not less free from objection; as the morphia and narcotine are not separated from each other, and as they are thrown down with very variable proportions of resinous extractive. Morphia, moreover, is, to a certain extent, soluble in a solution of carbonate of soda; and if the heat employed in the process be too long applied, even the whole of the morphia may be dissolved.

Pareira considers the process of Thiboumary‖ as the best at present known; and probably it is sufficiently simple and accurate where the proportion of morphia is alone to be determined.

Merck's process§ for obtaining all the active principles from one portion of Opium is far too elaborate, and (from the large quantity of ether employed) too expensive for general use, even admitting that it affords accurate quantitative results, which, however, would appear to be doubtful.

In 1842, Dr. O'Shaughnessy described, in his "Manual of Chemistry,"¶ a method for estimating the proportions of morphia and narcotine, which so far recommended itself by its simplicity and accuracy, that it was generally adopted by the Opium examiners of the Bengal Presidency, under the name of the "Factory process."

About three years ago, whilst engaged in the examination of a considerable number and variety of samples of Opium, I re-

* Journal de Pharmacie, xxiv. 448.
† Do. do. xxiv. 438.
‡ Edin. Phar., Art. *Opium-tests.*
‖ Journal de Chemie Med. 2 Ser. iv. 404.
§ Gmelin's Handbuch der Chemie, ii. 1244.
¶ O'Shaughnessy's Manual of Chemistry, 2nd edition, p. 334.

ceived from Dr. O'Shaughnessy a communication, detailing certain improvements he had been led to introduce into his original process. Up to this period I had made use of several of the above-mentioned methods, but with such variable and partial success that I was glad to avail myself of so much more complete and accurate a process. I have since, and lately, had abundant opportunities of testing the advantages of Dr. O'Shaughnessy's process of detecting the very few defects that still pertain to it, and of devising means for obviating these. I believe this process, in its improved form, affords the most simple, accurate, and expeditious means hitherto invented for the estimation of the two most important principles of Opium—morphia and narcotine; and it must be remembered that if narcotine is, as there can be little doubt, possessed of anti-periodic properties, this method of analysis, determining, as it does, the proportion of narcotine as well as of morphia, comprises all that can be desired in the estimation of Opium for medicinal purposes. I therefore beg to lay before the Society the details of the process, with some of the results I have obtained by means of it.

Process.—Take of the Opium 1,000 grains; break it down, and triturate it with 16 fluid ounces of rectified spirit of wine; place the whole in a stoppered bottle, agitating it frequently for 24 hours; then strain through linen, and express the adhering spirit. To the strained liquor add liquor ammoniæ one fluid ounce, and boil down the mixture to a quarter of the original bulk.* Allow it to cool, and in a few hours a large crop of crystals will be deposited, surrounded by a thick fluid, like treacle: separate the crystalline mass by squeezing it in linen.†

To purify the Narcotine.—Agitate the crystalline mass with distilled water 8 ounces, acidulated with a drachm of hydrochloric acid,‡ and filter through paper; add ammonia, drop by drop, to the filtered solution, till it ceases to throw down a bulky precipitate, which is pure narcotine; this may be collected on a filter, washed with distilled water, and, if at all coloured, with a

* If a retort be at hand, three-fourths of the spirit may here be recovered.

† This mass consists of narcotine, meconate of ammonia, and resin. The expressed liquid contains meconate of morphia, resin, and other principles.

‡ This dissolves the narcotine, and leaves the resin floating in whitish flocculi.

little weak spirit; then cautiously dried in a water-bath, and weighed.

To obtain the Morphia.—Add to the expressed liquid, like treacle, about 10 or 12 ounces of distilled water. This instantly throws down a clotted mass of brown resin, which, in a few hours, adheres to the sides of the vessel. Strain the liquor through linen; add to it ammonia in excess; and allow the whole to remain at rest for six hours. The whole of the morphia will then be found deposited as a brown half-crystalline crust, adhering to the sides and bottom of the vessel;* this crust is then to be removed, colected on a filter, washed with distilled water, dried in a water-bath, and weighed.

Dr. O'Shaughnessy directs the brownish-coloured impure morphia obtained in the process to be washed upon the filter, with about an ounce of rectified spirit of wine; the object of which is to remove adhering resin. But I have found that the spirit carries through with it a considerable portion of the morphia, as well as the resin, and thus occasions a loss in the estimate of the former. Narcotine, which is so sparingly soluble in alcohol, may safely be washed with diluted spirit, as directed in the process; but in the case of morphia it is better to remove the impure alkaloid from the filter; re-dissolve it in very dilute hydrochloric acid, and re-precipitate it by ammonia, taking care to allow a few hours to elapse before re-collecting the precipitate of morphia, which may then be cautiously dried, and will in general be found sufficiently pure to be weighed. If, however, a still greater degree of purity be considered necessary, the solution in hydrochloric acid may be digested with animal charcoal, (about five drachms,) at a temperature of about 120° Fahr., for an hour; then, on precipitation by ammonia, the morphia will be obtained of perfect whiteness, and may be estimated as absolutely pure.

Rationale of the Process.—In the foregoing process the spirit dissolves out about four-fifths of the opium, and the solution contains all its active principles. On the addition of ammonia, and during the subsequent boiling, the narcotine, together with much resin, is precipitated, whilst the meconate of morphia is unaf-

* This crust is most easily removed when the precipitation is effected in an evaporating basin.

fected by the ammonia; because morphia will even displace ammonia from its compounds, at a boiling temperature; and thus the meconate of morphia, remaining dissolved in the treacle-like liquid, a complete separation of these two most important principles of opium is readily effected.* This, in fact, is the guiding principle in the process, all the details being designed for the thorough purification of the morphia and narcotine. That these principles are completely separated from each other, I have proved by a careful examination of the products of the process. The morphia obtained gives a red solution with nitric acid, and a deep blue one with solution of the sesquichloride of iron; and on being dissolved in strong oil of vitriol, and the solution touched with a glass rod dipped in nitric acid, it gives a deep brownish-black solution. The narcotine, on the other hand, is quite unaffected by the sesquichloride of iron, and when dissolved in strong oil of vitriol, and the solution touched with a glass rod dipped in nitric acid, it yields a deep ruby-red solution, closely resembling in appearance the meconate and the sulphocyanide of iron.

In the following Table are arranged some of the results I have obtained by the foregoing method. The 1st column contains the description of the sample submitted to analysis, with the year of its growth; the 2nd column shows the per-centage of dry Opium; and hence represents the relative consistence of each sample; the 3rd contains the quantity of morphia per cent. actually obtained; the 4th the per-centage of morphia calculated for 100 parts of the dry drug. Columns 5 and 6 show the proportions of narcotine obtained, and those calculated for 100 parts of the dry Opium. The 7th column represents the proportion of crystals per cent of dry Opium,—that is, of morphia and narcotine taken together.

Samples of Opium vary so considerably in the proportions of water they contain, that no just comparison of their relative composition can possibly be made, unless their absolute per-centage of dry Opium be first determined, and the proportions of morphia

* Codeia, which seldom exists in as large a proportion as 1 per cent., is not precipitated by ammonia; and the other alkaloids are in quantities too minute to interfere with the estimate of morphia and narcotine.

and narcotine calculated from this. So that in the Table, columns 4, 6, and 7 alone represent true comparative results; column 7 gives the general value of the sample; and 4 and 6 the value in morphia and narcotine, respectively.

Remarks on the Samples of Opium in the Table.

No. 1. An average specimen of good Malwa Opium.

No. 2. A specimen, sent to me from Indore by Dr. Impey.

No. 3. Malwa Chick, (raw juice), sent to me by Dr. Impey, for comparison with No. 2; both being the produce of the same season.

Nos. 4 and 5. Patna and Behar chick, sent by Dr. Impey.

No. 6. Bussahir Hill Opium, forwarded by the Bengal Government. This specimen contained a larger proportion of morphia than I have found in any other Opium.

No. 7. A sample of some Egyptian Opium, which, having been smuggled into Bombay from the Red Sea, was seized at the Custom House. A quantity of this was supplied to the Medical Stores; and of this, the larger proportion was issued for medicinal use as extract, of which No. 8 represents the composition. The practice at the Medical Stores of converting into extract the greater proportion of the Opium intended for medicinal use, is probably adopted with the view of removing mechanical impurities; but the results of my analysis of the crude Egyptian Opium, and of the extract obtained from it at the Stores, show that, in conversion into extract, the drug suffers a much greater deterioration in value than can be compensated for by the removal of mechanical impurities, for I found that 1,000 grains of this Egyptian Opium yield 512 of dry extract. Now, supposing this to contain the same amount of morphia and narcotine as the Opium from which it was obtained, it should yield 34·0 grains of morphia, and 47·0 of narcotine; but the extract yielded only 28·6 of morphia, and but 10·74 of narcotine, showing a loss of 5·4 gains of morphia, and of 36·26 of narcotine.

It is easy to account for this loss sustained by the extract, because it is well known with what facility proximate principles of such delicate chemical structure as the vegetable alkaloids may be decomposed by a continued high temperature; and although both morphia and narcotine have probably more stability of com-

position than atropia, conia, and hyoscyamia, which are so readily decomposed at a boiling temperature, that the extracts of the plants that yield them must be made in vacuo, yet there can be little doubt but that the alkaloids of Opium are similarly decomposed by a protracted high temperature. It is, moreover, possible that these alkaloids may, like quina, sugar, and other vegetable principles, be capable of existing in the uncrystallizable as well as in the crystallizable state ; and that a protracted exposure to a boiling temperature may render morphia and narcotine (as it does sugar) uncrystallizable, and thus place some portion of them beyond the reach of quantitative determination.

These facts should tend to restrict the preparation of the extract of Opium to such samples of the drug as contain unusual quantities of *insoluble* impurities ; for the *insoluble* matters are those alone which do not find their way into the extract.

All soluble impurities, such as goor, goond, kuth, gowar, patthar, will pass into the extract ; and these are the very substances that constitute the commonest of all the adulterations of Opium. Christison appears to hold the extract of Opium in very low estimation, for he says, " it is a preparation for which pharmacy is more indebted to prejudice than to scientific intestigation ; and late inquiries show that it cannot be made without the active principle morphia partly forming, with the resinoid matter of the drug, a compound nearly insoluble in all ordinary menstrua ; and therefore probably not very soluble in the fluids of the stomach."*

Nos. 9 and 10 are average samples of Candeish Opium, submitted for analysis by the Opium Agent, from a suspicion of the inferior quality of the Opium supplied by the Candeish Factory. The physical characters of this Opium are of themselves sufficient to indicate its very inferior quality.

It is in hard circular plano-convex cakes, measuring about 5 inches in diameter, about 1½ thick in the centre, and weighing about 12 ounces. These cakes are grey-coloured outside, and jet-black within : they have a very feeble odour of opium, but a very distinct one of goor. On cutting a cake, it gives a feeling

* Christison's Dispensatory, p. 678.

of grittiness, and its section shows streaks of some white foreign substance. This Opium yields smaller proportions of morphia and narcotine than I have found in any other varieties; and, besides a large quantity of soluble impurities, such as goor, and of charcoal powder, the proportions of which it is impossible accurately to estimate, it contains 8.67 per cent. of earthy silicates, which probably constitute the white substance with which the Opium is streaked, and which are most likely introduced in the form of "Jungjirabat," a kind of steatite, and an acknowledged adulteration of Opium.

The following is the method I adopt for determining the proportion of earthy impurities in Opium :—500 grains of the drug are incinerated in a platinum crucible, and the carbonaceous residue is reduced to fine powder, and intimately mixed with five times its weight of nitre. The mixture is then carefully deflagrated, by throwing small quantities of it at a time into a capacious red-hot platinum crucible. A white saline mass is left, which is triturated with distilled water, and its insoluble matter collected upon a filter, well washed, and dried : these are the earthy matters of the Opium. In this process the oxygen of the nitre burns away the carbonaceous residuum of the Opium, and leaves a saline mass, consisting of carbonate of potash, undecomposed nitre, and any earthy matters the Opium may have contained. I have proved that the carbonate of potash into which most of the nitre in this process is converted, does not dissolve any portion of the silicates, by concentrating the solutions obtained by washing the saline mass, and by not obtaining from them any precipitate of silica, on the addition of a strong acid.

That the great inferiority of the Opium from the Candeish factory is not attributable to any natural defect in the produce of the poppy grown in the province of Candeish, but is solely to be ascribed to the adulterations practised in its manufacture, is still more strikingly evident, from the very superior qualities of the chick, or raw Opium, from which it is prepared. No. 11 shows the composition of an average specimen of Candeish chick, supplied me by the Opium Agent. It had a fine chesnut-brown colour ; gave out a strong, pure smell of Opium ; was quite free from grittiness, and mechanical impurities ; and

yielded as much morphia as the best Malwa Opium, and a larger proportion of narcotine than I have found in any other Opium.

The history of the Candeish factory Opium is simply this :— About twenty years ago the Bengal Government, in order to secure their monopoly of Opium, directed their attention to the abolition of the poppy cultivation in Western India. They were, however, induced to allow it to be continued in Candeish, on the understanding that the whole of the chick, or raw juice, should be sold to Government, and manufactured exclusively for consumption in the districts of this Presidency. The adulterations practised upon the Opium must, therefore, be effected by the native officials, who collect the chick in the districts, and manufacture it into Opium ; and so great and palpable have been these adulterations of late, that at present the whole of two years' produce is lying unsaleable in the Government godowns.

Table showing the per-centage of Morphia and Narcotine in Eleven Samples of Opium.

Samples.		Dry Opium per Cent.	Morphia.		Narcotine.		Crystals per Cent. of dry Opium.
No.			Found.	Calculated for dry Opium.	Found.	Calculated for dry Opium.	
1	Malwa, 1848.	96.5	5.23	5.42	5.95	6.16	11.58
2	Malwa, 1850.	89.6	3.95	4.40	5.90	6.59	10.99
3	Malwa Chick, 1850. . . .	71.4	1.55	2.17	4.45	6.37	8.54
4	Patna Chick, 1850.	74.6	3.70	4.83	3.90	5.24	10.07
5	Behar Chick, 1850.	79.6	2.00	2.51	4.30	5.40	7.91
6	Bussahir, 1848.	85.0	6.12	7.20	4.18	4.91	12.11
7	Egyptian, 1849.	92.3	3.40	3.60	4.70	5.09	8.69
8	Egyptian Extract.	83.0	4.70	5.60	1.80	2.10	7.70
9	Candeish, 1848.	90.6	1.30	1.42	2.60	2.87	4.29
10	Candeish, 1850.	91.0	1.80	1.90	2.65	2.80	4.70
11	Candeish Chick, 1850. .	93.0	5.00	5.30	7.20	7.70	13.00

Article VII.

Notes on the Climate of the Cape of Good Hope. By M. Stovell, Esq.

Presented March 1851.

The Colony of the Cape of Good Hope includes a surface of about 125,000 square miles, stretching in an easterly direction from Cape Point, in longitude 18° 24′ east, as far as the Keiskamma River, in longitude 27° 30′, and northerly from Cape Agulhas, in latitude 34° 40′ south, to the Gareep or Orange River, in 30° 25′. According to the population return for 1847, the total number of inhabitants was 168,000.

Cape Town, the capital, is situated on the shore of Table Bay, in latitude 33° 6′ south. It is an extensive, clean town, containing a mixed population of about 25,000 inhabitants. The streets are wide, and built with extreme regularity, crossing each other at right angles, and thus allowing a very free ventilation. The town, however, is somewhat confined in extent and situation, from being partially enclosed by an amphitheatre of lofty hills, stretching from north-west in an irregular semicircular direction by south to east. The highest portion of this range consists of Table Mountain, 3,500 feet high. The plain on which the town is built has a gradual ascent from the shore of the bay to the foot of this high land. The upper portion of Table Mountain, to the depth of about 1,500 feet above the level of the sea, consists of old grey and red sandstone, in nearly horizontal strata, having but the slightest possible dip to the west. These strata stand on naked granite, and, presenting a surface of considerable extent, make an excellent filter for the rain, which falls plentifully in the winter, and which, percolating freely through the sandstone, makes its way out above the granite. It is then collected in reservoirs, and conveyed by means of pipes to every part of the

town, which thus receives an unfailing supply of the purest water. I doubt if there is finer water in any part of the world.

In venturing to offer a few remarks on the climate, I must be allowed to premise that I am perfectly aware I am doing so under many disadvantages. My personal experience of its effects was confined to a limited residence of eighteen months, in 1848 and 1849, and during that time I had no field for professional observation. It may naturally be asked, then, why, under these circumstances, I presume to offer any remarks at all? I must therefore be excused for mentioning my reason. On first reaching the Cape, I tried to obtain some work or papers on the subject of its medical topography, but could meet with nothing of the kind, excepting Major Tulloch's very valuable Colonial Statistical Reports, which were published in 1840. Such being the case, I dotted down from day to day everything which struck me as being worthy of notice, connected with the character of the climate, the course of the seasons, and the peculiarities of the weather. I at the same time noted down the state of the thermometer regularly, and gained what information I could in the course of intercourse with residents. It is therefore possible that a few observations may be of some slight assistance to those who are contemplating a change of climate, either for themselves or for others.

My personal observation was confined to Cape Town itself and the neighbouring villages of Rondebosch and Wynburg, to the watering place of Kalk Bay, and to the town of Stellenbosch.

The climate of the whole colony is doubtless most healthy; that of the eastern provinces is said to be even more so than the climate of the western. This is the opinion, not only of the majority of residents, but also of Major Tulloch, who deduces this opinion from the result of statistical research. He states at the same time that the eastern frontier is the most healthy of any portion of our colonies. In drawing this conclusion, he states, in reference to other colonies, that the mortality in Australia, from disease alone, on the average of twenty years from the year 1817 to 1836 inclusive, "could have amounted to little more than 1 per cent. annually, being lower than in any other colony except the eastern provinces of the *Cape of Good Hope*, to which the

climate of Australia is in many respects similar." He further states "that the salubrity of the eastern provinces is probably unequalled in any portion of the globe." As a proof of this, he mentions that in "the three districts of Somerset, Albany, and Uitenage, the deaths in 1833 did not amount to more than 327 in a population of 30,000, being only 1 in 91, much lower than ever observed in the healthiest districts of Great Britain." No additional testimony as to the exceeding salubrity of this portion of the Cape seems required, and there can be but little doubt that the physical characters of the climate, along the entire sea line from the Keiskamma to Cape Town, are in all essential points the same.

The seasons, I need scarcely observe, are the reverse of those of the northern hemisphere. December, January, and February are the summer months; March, April, and May the autumnal; June, July, and August the winter; and September, October, and November the spring. I will now endeavour to convey some idea of the character, peculiarity, and course of these seasons.

Summer. This is the only portion of the year which can be considered at all trying, or even unpleasant. Perhaps, however, I ought to include the latter half of November and the former half of March. Yet throughout the entire summer the heat is seldom excessive, being greatly moderated by a regular and strong breeze from the south-east. I never knew my thermometer, inside the house, to rise higher than 80°, and that only on one occasion, previous to a thunder-storm. Outside the house, in the shade, it once in February rose for an hour or two to 87°. Once it rose to 84°, also in February; twice only it rose to 80°, once in January, and once in February. On no other occasion during the whole summer did it ever reach 80°. I ought to mention, however, that I passed the season at Kalk Bay, the coolest of spots, about sixteen miles from town, where a strong sea breeze was almost constantly blowing fresh from the south-east.

During the whole of this season, however, I received repeated

accounts of the extreme heat in Cape Town, the thermometer occasionally rising out of doors in the shade to upwards of 100°. There is, indeed, at all times a striking difference between the temperature of Cape Town and the neighbouring villages. This, however, is more particularly observed during the summer, at which time nobody appears to live in town who can by any possibility manage to retire a few miles into the country. This difference is mainly attributable to the position, height, and extent of Table Mountain, which not only forms a screen to the cool south-east wind, which blows freshly over Kalk Bay, Wynburg, and Rondebosch successively, but by reflecting the solar rays during the day, and radiating a portion of its acquired heat by night, greatly raises the thermometer at all times. I have slept in Cape Town in November, the end of spring, and have felt almost suffocated with heat, yet during the summer at Kalk Bay I never but twice dispensed with a blanket.

The prevailing wind during the summer months is south-east, and it blows almost constantly ; but as Cape Town is situated to leeward of Table Mountain, it is in consequence at this season most disagreeably hot. As Table Mountain thus obstructs the direct passage of this wind, it appears to reverberate from it, and to force its way round both shoulders of the mountain with great strength and impetuosity, forming violent eddies and cross-currents, and this effect is increased by a portion of the wind, which finds its way in violent gusts through some broken ridges on its summit.* All this time Kalk Bay, Wynburg, and Rondebosch, being to windward of the mountain, are comparatively cool and pleasant.

The mean of the thermometer during the three summer months was 68° outside the house in the shade, and 69° inside.

* "The South-East wind is usually accompanied and announced by that peculiar cloud called the 'table-cloth,' which lies along the top of Table Mountain like a wreath of snow, while the rest of the sky is perfectly clear. Portions of the skirts of this cloud are seen rushing down the cliffs like cataracts, for a certain distance, till they are dissipated by the hotter air below, but the great mass remains as stationary as if it were a fixed and solid body."—Bunbury's "Cape of Good Hope," page 54.

Autumn. The early part of March, the first autumnal month, shows but little variation in the state of the thermometer, but towards the 20th, when the sun gets a northern declination, an agreeable change begins to take place. The nights become longer and cooler, the mornings and evenings almost cold, and the days far from being disagreeable. As April approaches, a few heavy showers cause a delightful transition from the dryness of summer to the refreshing coolness of autumn. With May comes heavy rain, now and then, still further cooling the air and reducing the thermometer. The mornings and evenings now become cold enough to render fires agreeable, if not actually necessary, and the days for the most part are deliciously cool. During the early part of March, the thermometer inside my house at Kalk Bay once rose as high as 75°, and four times to 71°, but the average of the month at 4 P. M. was only 68°, and at the same hour outside in the shade 64°. During April, at Wynburg, the thermometer three times rose inside the house as high as 72°, but the general average at 4 P. M. was 68° inside, and 66° outside. In May, also at Wynburg, the thermometer inside only once rose as high as 66°, the average at 4 P. M. being 61° inside, and 57° outside.

The mean of the thermometer during the three autumnal months was 64° outside the house in the shade, and the same inside.

Winter. No climate in the world could be more agreeable to the feelings, and very few more beneficial for the usual class of Indian invalids, than a Cape winter, viz. June, July, and August. There is an invigorating freshness about this season equally delightful and beneficial. As the autumn merges into winter, the season is generally marked by a few heavy thunderstorms. The reverberation of the thunder from Table Mountain is particularly grand. Heavy rain, lasting for a day or two, begins to fall, and continues to do so, at intervals of eight or ten days, during the whole of the winter. This is the rainy season; but the moment the rain ceases, the clouds rapidly clear away, and the sky remains bright for several days. It is a beautiful season. The sides of the mountain and the slopes of the hills quickly recover the freshness and beauty of which a long dry sum-

mer had deprived them ; gardens and fields are put under cultivation ; and ere long, every inch of ground is bright and green. The weather varies but little the whole season. July is somewhat colder than June, and August than July, the climate being modified to a slight extent by the relative quantity of rain. The summits of the distant mountains in the interior are seen during the greater part of the winter to be covered with snow. I passed two winters at the Cape. During the first I lived at Leuendal, near the Government gardens, almost joining Cape Town itself. The second winter I passed at Wynburg, a small village eight miles from town, the situation of which is singularly beautiful. It stands upon a spur of Table Mountain, the summit of the ridge commanding a partial view of Table Bay to the north, and Simon's Bay to the south. It combines all the elements of rich scenery,—hill, dale, wood, and water,—and the subject seems worthy of being mentioned, because the charm of scenery is well calculated to have a beneficial influence on certain classes of invalids. There are doubtless many circumstances connected with a change from India to the Cape or elsewhere, which in themselves are calculated to exert no slight influence in producing a beneficial effect upon the health, independent of the actual change itself. The most obvious of these are, at the same time, generally the most unvarying in their effects, viz. the hopes excited by the adoption of so decided a measure, the entire freedom from the worries of official life, and the new and healthy currents of thought consequent upon the total change of scene and occupation; and to these I would add the influence produced by the charm of scenery. We are all acquainted with the nice sympathy existing between body and mind,—with the influence exerted by impressions conveyed through the external senses on the latter, and reversely the action of the mind on the former. A change to the Cape has but little of the moral influence on health which Europe so beneficially exerts : the being surrounded, for instance, by a thousand things at every turn which animate and interest. Not so at the Cape. There, unhappily, we meet with but little to interest a stranger, unless he be a sportsman or a botanist. We are consequently thrown very much upon the resources afforded by physical advantages ; and

hence more especially it is that scenery is calculated to exert the beneficial influence I have alluded to.*

During the first winter at Leuendal, the average of the thermometer inside the house at 3 P. M. was 58° in June, 58° in July, and 57° in August. At the same hour outside it was 59° in each month. The lowest the thermometer reached inside was 53° in June, 51° in July, and 48° in August; the lowest outside, soon after daylight, being 51° in June, 49° in July, and 47° in August. At Wynburg, the following winter, the average of the thermometer inside the house at 3 P. M. was 60° in June, 59° in July, and 58° in August. At the same hour outside it was 58°, 58°, and 56° in each month, respectively. The lowest the thermometer reached inside was 58° in June, 53° in July, and 52° in August; the lowest outside, soon after daylight, being 48°, 43°, and 44° in each month, respectively.

The mean of the thermometer during these three months was 55° outside the house in the shade, and 59° inside.

During the winter months many people have fires the whole day, and nearly everybody morning as well as evening.

Spring.—September, October, and November.—This is the favorite season with the residents, more particularly with the Dutch residents; and it is certainly a most agreeable time of the year, at all events till the month of November begins to merge into the heat of summer. To the eye nothing can be more exquisite. Flowers of infinite variety and of exquisite beauty literally cover the earth.† The thousands of oaks, which lost

* "The pure and transparent atmosphere of the Cape gives a great charm to the scenery, and especially to the mountains. The lights and shadows on their rugged sides in the mornings and evenings are particularly beautiful." "The scenery has much of an Italian character, and is set off to advantage by a climate even superior to that of Italy. Some of our party compared the environs of Cape Town to those of Florence."—Bunbury's "Cape of Good Hope," pages 58 and 64.

† "The natural productions of the Cape Peninsula, in the vegetable kingdom, are perhaps more numerous, varied, and elegant, than on any other spot of equal extent in the whole world."—Barrow's "Africa," Vol. I. page 24. Among the countless genera of plants growing in wild luxuriance within a few miles of Cape Town, I may mention, as some of the most strikingly beautiful, the different species of the ixia, iris, chironia, lobelia, hypoxis, amarylla, gladiolus, diosma, geranium, crassula, oxalis, cotyledon, and anemone. The heaths growing on the knolls and flats round Wynburg are as diversified in species as in beauty. Among the

their leaves in April and May, now recover all their beauty, forming noble avenues, and affording delightful shade. The gardens are in perfection, and the corn-fields and vineyards all rapidly ripening. Occasional showers during September and October add to the charm of the season; but the warmth and dryness of November become somewhat unpleasant, yet not sufficiently so to interfere with the power of taking exercise at all hours of the day,—a course so conducive to health and enjoyment whenever it can be indulged in.

I spent September at Wynburg, part of October at Stellenbosch, and the latter half of November at Kalk Bay. The average of the thermometer inside the house at 3 P. M. was 61° in September, 67° in October, and 68° in November. The lowest the thermometer fell to was 53° in September, 61° in October, and the same in November. The highest it reached in these months was 62°, 74°, and 73°, respectively.

The mean of the thermometer during the three spring months was 63° outside the house in the shade, and the same inside.

Fires during the evening continued to be agreeable, even if not actually necessary, till the middle of October, from which time they were not used again till the end of April.

Such is a brief outline of the course of the seasons, with their peculiarities and differences. The mean annual range of the thermometer during the entire year, according to my own observations, was 61° 690′ in the open air in the shade, and 64° 395′ inside the house.*

larger shrubs the protea, in its different species, is the most common. One species, the protea argentea, or "silver tree," may be particularly mentioned, from the very striking appearance which is caused by its silvery-white leaves. It grows to a considerable height, and is conspicuous on the rising ground along the base of Table Mountain, where it also fills up many of the deep furrows on its sides.

* In forming an estimate of the character of the climate of the Cape,—more particularly in relation to climates in Europe,—it must be borne in mind, that though its latitude is within 34° of the equator, it has a mean annual temperature of places in much higher geographical parallels in the Northern hemisphere. Its mean temperature, for instance, is that of Naples, in latitude 40° 51′ North. The same remark holds good of all places in the temperate zone of the Southern hemisphere, compared with the Northern, so far as dependence can be placed on their thermometrical data. Hobart Town, for instance, in 42° 45′ South, has a mean annual temperature of 52°5′, while Rome, in the same parallel in the Northern hemisphere, has

As I was desirous, however, of obtaining more precise meteorological facts, founded on deductions from observations made during a series of years, I naturally sought assistance from the Royal Observatory ; and, with that obliging kindness for which the Astronomer Royal and his Assistants are so eminently distinguished, I was most kindly furnished by one of the latter with much valuable information, and with a series of Tables deduced from observations made during five successive years.* As the variations from year to year, however, are exceedingly slight, I will at the present moment merely give the result of the observations made during 1848 ; and I the more readily confine myself to this period, as the whole of the magnetical and meteorological observations, made during a long series of years, are at the present moment, I believe, in process of reduction at home, and may be expected ere long to appear.

a mean temperature of 59° 8′. Instances might be multiplied. "The Southern hemisphere is cooler and moister than the Northern. The areas of dry land in the Northern and Southern hemispheres are to each other in the proportion of 3 to 1. But this inferiority of extent in continental masses in the Southern hemisphere, as compared with the Northern, belongs much more to the temperate than to the torrid zone. In the temperate zones of the Northern and Southern hemispheres the ratio is as 13 to 1 ; in the torrid zones as 5 to 4. The great inequality in the distribution of dry land exercises a very sensible influence on the strength of the ascending aerial current, which turns towards the Southern pole, and on the temperature of the Southern hemisphere."—Humboldt's "Aspects of Nature," translated by Mrs. Sabine, Vol. I. page 140.

* To the Revd. G. F. Childe, the gentleman alluded to, I feel deeply indebted, and the more so as I know well, that the several Tables were compiled at the expense of great personal labor in examining and extracting from voluminous records amidst the pressure of daily duties.

Date.	Barometer corrected.		Mean Temperature in the Shade.	Humidity.	Mean Temperature.		Extreme Temperature.	
	Temperature and Capillarity.	Tension.			Maximum.	Minimum.	Maximum.	Minimum.
1848.	inches	inches	degrees		degrees	degrees	degrees	degrees
January ..	29·874	29·384	70·435	68	77·33	63·99	86·6	58·9
February..	29·879	29·397	67·845	73	74·56	61·27	83·6	54·4
March ...	29·927	29·428	68·048	75	74·61	61·22	85·7	54·0
April.....	29·914	29·486	61·219	83	67·22	54·80	74·4	47·0
May	30·042	29·658	58·241	84	63·59	52·74	75·4	43·0
June	30·141	29·777	55·206	85	59·49	50·17	69·7	43·2
July	30·118	29·761	54·831	84	59·14	50·02	70·1	43·4
August ...	30·104	29·750	54·276	85	58·50	48·45	69·8	39·9
September	30·087	29·710	57·494	81	62·67	51·67	75·2	45·0
October ..	30·082	29·686	61·876	74	68·14	54·50	89·5	45·9
November.	29·983	29·543	65·075	73	71·13	58·27	84·2	46·0
December.	29·911	29·453	67·428	71	73·06	60·43	81·2	55·6
Means.....	30·005	29·586	61·831	78	67.445	55·627	78.783	48·025

This Table embodies full particulars on all points connected with the character of the atmosphere, in relation to its three principal conditions of pressure, temperature, and humidity. Each column contains the monthly means of daily observations, concluding with the annual mean. These daily observations are the means of observations made five times in the twenty-four hours. The first column contains the height of the barometer reduced to 32°, and corrected for capillary attraction of the tube. In the second the readings are corrected for the elasticity of the vapours suspended in the atmosphere. The humidity is expressed in parts of 100, considered as complete saturation. It seems unnecessary to refer to the remaining columns of the Table, further than this, that the thermometers are all expressed in terms of Fahrenheit's scale, and corrected for index errors by comparison with the standard thermometer of the Royal Society. They might, therefore, be taken as the indications of that thermometer, supposing it to have been transported to the Cape.

It will be seen from this Table that the mean maximum temperature is 78°, and the mean minimum 48°, showing an annual range of only 30°, while the difference between the means of the hottest and coldest month is only 16°. It will thus be apparent that the temperature is equally removed from the extremes of

heat and cold; and, moreover, that there is considerable equality in the distribution of temperature throughout the year. It will also be seen that the mean difference in the temperature of successive months is less than 3°. This is a point of great importance in forming a correct estimate of climate, for it shows that there are no sudden or great variations in the thermometer as the seasons successively change, but that they glide into each other almost imperceptibly.

The mean annual fall of rain, as at present ascertained, is very nearly 22 inches, at an elevation of about 33 feet above the mean level of the sea; and the number of rainy days is about ninety. The heaviest fall of rain is during the winter months of June, July, and August, but there is also a good deal during May and September, with occasional showers during the whole of spring and autumn, but scarcely a drop during summer.

I should explain that the Royal Observatory is situated on an open space about three miles south-south-east from Cape Town, and is freely exposed both to the north-west wind of winter and the south-east of summer.

With regard to the different states of electric tension, viewed as an element of climate with reference to its effects on the body in health and disease, I am unable to give the least information. It is no doubt a most important subject for investigation, but one about which we have, I believe, little or no information at present from any quarter of the globe.*

It will be observed that the annual mean, the result of my own observations, differs but slightly from that of the Observatory. Taking the latter as the one for comparison, it will be seen by

* "Of all the points to which observers direct their attention, this is the one most frequently overlooked. And yet, in whatever way we regard it, the subject is fraught with the deepest interest and importance. We know that every chemical action involves electric change; that in the vital processes carried on in all organic bodies the same is of necessity present; that differences of temperature cause alterations in the electric equilibrium; that every act of evaporation or deposition of water on the surface of the globe has a similar effect, even the spray of a waterfall sensibly affecting the balance of an electrometer near it; and yet, with all this, we are almost in our infancy as regards any positive acquaintance with the nature and kind of actions which must be produced upon the living organism by alterations in the electrical condition of the medium in which they live."—British and Foreign Medico-Chirurgical Review for October 1850, page 312.

the following Table that the annual mean at the Cape is 3° higher than at the Neilgherry Hills, and 5° lower than at Mahableshwur :—

Station.	Mean Annual Temperature.
Cape of Good Hope...	61° 831′
Neilgherries	58° 1′*
Mahableshwur.....	66° 37′†

Thus, it will be evident, there is no great difference between the mean annual temperature of the three places to which our invalids so frequently resort. The Cape, however, has an immeasurable superiority in a medical point of view, inasmuch as the temperature produced by *latitude* is of unspeakably greater value than a similar temperature produced by *elevation*. Visceral disease may without hesitation be sent to a place like the Cape, the temperature of which is caused by distance from the equator; but the united testimony of all practical observers seems to prove that such cases cannot with impunity be sent to any place of similar temperature, caused solely by elevation. Even to the feelings, there is, I think, a great and well-marked difference between the effects of these two kinds of temperature. There is, at all events, an invigorating freshness at the Cape, such as I never experienced at Mahableshwur.

Hitherto I have chiefly viewed the climate of the Cape in relation to the indications of the thermometer, but everybody accustomed to observations of this kind, is aware of the great difference between sensible heat, and that indicated by instruments. At the Cape this difference is peculiarly striking, and seems mainly to depend on the state of the winds. Whenever these are strong,—coming, as they almost invariably do, fresh from the sea,—heat is seldom felt to be oppressive, even at the height of summer; and exposure to the sun at all hours, under such circumstances, is a constant practice with everybody. In calm weather, on the contrary, even in winter, the amount of solar

* Transactions Medical and Physical Society, Vol. I. page 103.

† Idem, Vol. VI. page 6.

radiation is so great that exposure to the sun is sometimes attended with a disagreeable feeling of heat. I have more than once seen a difference of forty degrees between two thermometers placed outside the house, one in the shade, the other in the sun, and this too even in autumn. The range of the thermometer gives but little insight into the variableness of the climate as judged of by the feelings. This, again, is owing to the state of the wind. The thermometer is frequently very equable night and day, and for days together, while to the *feelings* there are frequent changes of temperature. The diurnal range inside the house, during the autumn, I found to be singularly slight, seldom exceeding three or four degrees, and frequently not more than two. Outside in the shade, during the same season, it was generally eight or ten, the temperature morning and evening being two or three degrees lower than inside, and at mid-day four, five, and six degrees higher.

I must add a few words, then, on the character of the winds, seeing the important bearing they have in modifying the nature of the climate. The prevailing winds are north-west during winter, and south-east during the remainder of the year, particularly during the summer, at which season the wind, as might be expected, blows usually with great violence, rushing, as it does, to replace the heated strata of air constantly rising from the parched surface of the interior to the higher regions of the atmosphere. Occasionally the wind blows from south-west, forming the "kloof wind," as the Dutch call it, from the circumstance of its blowing down a particular kloof or gorge in the high land south-west of Cape Town. This wind is considered very unhealthy, and is much dreaded. It blows fresh and cold from the sea, but is loaded with moisture, is often attended by heavy fogs, and is frequently the precursor or accompaniment of rain. The Dutch, in particular, attribute all kinds of evils to this wind; and from the united testimony of medical and popular observation, it certainly seems instrumental in causing croup in children and rheumatism in adults. This, however, may perhaps be easily accounted for, by the physiological explanation of the effect of cold moist air on the two processes of pulmonary exhalation and cutaneous transudation.

But the prevailing winds, viz. the north-west and south-east, are universally considered most healthy. Their peculiarity is that they generally blow hard or not at all. There is therefore either a gale of wind or a perfect calm ; and this forms one of the distinctive features of the climate. In the latter case, delicate invalids feel the climate most grateful to their feelings, particularly if they take but little exercise ; but in the former case, the wind blows with a strength and violence which produce a feeling of cold infinitely greater than the thermometer would indicate, for it is but slightly affected even by a gale of wind.

Thus to the feelings the transitions of temperature are both great and sudden, but they are mainly attributable, not to excessive changes in the thermometer, but to the direction, the strength, and the variableness of the winds, and perhaps more particularly to their rapidity of motion. We all know that air in motion is cooler to the feelings than air in a state of rest, and the greater the velocity the greater of course this feeling of coolness ; caloric under such circumstances being much more rapidly abstracted from the body. Thus the thermometer frequently remains unaltered, while to the *feelings*, owing to repeated gales of wind, great and rapid reductions of temperature *seem* to take place.

From the preceding statements relative to the physical character of the climate, it is evident that important modifications in the system are likely to be produced by a change from India to the Cape; and, with ordinary prudence on the part of an invalid, such modifications will be found to be highly salutary, more particularly as such change involves the important measure of a long sea voyage, thus gradually putting the system into the most favorable state for deriving ulterior benefit, for it is often of the utmost importance that a change of climate should neither be too sudden nor too great. This, again, is one great advantage which a change to the Cape must ever have over one to a hill station, even when in other respects the latter change may be perfectly unexceptionable.

Probably the great majority of Indian invalids who seek health by going to the Cape are gentlemen in the different Services, who have suffered more or less from functional disease of

the stomach and bowels, or chronic derangements of the liver; men, whose secreting and assimilating functions are very imperfectly performed. In many of these cases I have not the least doubt that a residence at the Cape is even more beneficial than a change to Europe, and certainly far more so when this latter change is obtained by a rapid run overland, more particularly if in winter. I doubt whether the important element of a long sea voyage for the restoration of health is sufficiently kept in view; yet it is usually of incalculable benefit, not only in its immediate results, but more particularly in its ulterior effects. How often do we hear that invalids running home rapidly overland, particularly in the winter months, find the sudden change to a cold atmosphere extremely hurtful; and this can easily be understood. The exhalent organs of the external surface are liable to become constricted, and the internal viscera, in consequence, congested. The result is frequently an aggravation of derangement in those organs which may previously have been weakened, either by disease or by the influence of an Indian climate.* Relapses in England from hepatic affections, as well as from dysentery and other diseases, are proverbially common.

* In reference to my opinion that sudden changes to a cold climate are calculated to be prejudicial to tropical invalids, I may point to the remarks of a man of large experience, who has lately written a succession of able papers in the *Lancet*. "Torpor of the hepatic function under the cold and damp of an English climate would seem, *primâ facie*, and naturally, to follow on the former frequent disturbance and general over-excitement of that function under tropical heat; and so we find it in fact." "It may here be observed of the disorder under consideration, (torpor of the liver,) as indeed of all the ailments, functional and structural, to which this class of invalids is liable, that the season for most effective treatment, in so far as the influences of medicinal and external agents are concerned, is that of moderate warmth, or during our English summer and autumn. It is then that medical management may be carried out with the best results, because of the more equable determination of the fluids to the surface of the body, because of the naturally increased development of the hepatic function, and because of the diminished tendency to abdominal congestion during these seasons. I continually find that the treatment which proves but slow in its results, or but palliative, in the winter and spring seasons, becomes effective and curative in June, July, and August." "It is during the English winter that the Indian suffers most severely from torpidity of the liver; and it is in summer and autumn that he obtains the most sure relief."—*Practical Observations on some of the more important Diseases of European Invalids on their return from Tropical Climates.* By J. R. Martin, F. R. S. LANCET, June 22nd 1850.

Now at the Cape we do not often meet with this. The reduction of temperature has been gradual, has been preceded by a long sea voyage, and is never sufficiently great of itself to produce visceral congestion, provided invalids are careful to guard against it by taking exercise, by using warm clothing, and by preserving a rigid adherence, at all events for a time, to great moderation in eating and drinking. Most of the invalids from India improve greatly before reaching the Cape, and seldom bear in mind sufficiently the importance of persevering in that regimen and mode of life which both the climate and the nature of their disease render necessary; yet this is evidently a condition on which alone they can reasonably expect to derive permanent benefit.

It is, however, with some reluctance that I venture to offer any remarks on the effect of the Cape in a therapeutical point of view; for although the physical characters of a climate may be regarded as of great value in enabling us to form a tolerably correct opinion in relation to the diseases in which it may be reasonably expected to prove beneficial, still I cannot but feel that the result of lengthened experience can alone enable us to determine with accuracy its precise influence.

It was with this feeling that I was desirous, if possible, of procuring a body of *recent* statistical facts bearing on the subject. Unhappily, however, my attempts to procure such facts in sufficient abundance failed. I was unable to collect data, sufficiently numerous as well as accurate, to justify me in drawing deductions for the purpose of being placed before the Society. I therefore avail myself of the admirable reports of Major Tulloch; and by extracting the following Table we shall have a clear view, not only of the nature of the principal diseases which prevailed among the troops on the eastern frontier of the Cape, from 1822 to 1834 inclusive, but also of the extent of the same classes of disease among troops in Great Britain.

	Admissions.			Deaths.		
	Cape Frontier.		United Kingdom.	Cape Frontier.		United Kingdom.
	Total among whole Force in 12 Years.	Annual Ratio per 1,000 of Mean Strength.	Annual Ratio per 1,000 of Mean Strength	Total among whole Force in 12 Years.	Annual Ratio per 1,000 of Mean Strength.	Annual Ratio per 1,000 of Mean Strength.
Fevers	537	81	75	8	1·2	1·4
Eruptive Fevers	2	...	3	...	...	0·1
Diseases of Lungs	541	82	148	16	2·4	7·7
„ Liver	140	21	8	7	1	0·4
„ Stomach and Bowels	584	88	94	15	2·3	0·8
Epidemic Cholera	...	...	4	...	...	1·2
Diseases of the Brain	65	10	6	4	0·6	0·7
Dropsies	10	2	1	3	0·5	0·3
Rheumatic Affections	396	59	50	...		
Venereal „	813	123	181	...		
Abscesses and Ulcers	669	101	133	1		
Wounds and Injuries	1104	166	126	4	1·8	1·4
Punished	168	25	8	...		
Diseases of the Eye	283	43	19	...		
„ Skin	65	10	29	...		
All other Diseases	363	55	44	7		
Total	5740	866	929	65	9·8	14·0

This Table seems to prove that the eastern portion of the colony is more favorable to health than the United Kingdom, the ratio of admissions into hospital annually being relatively as 866 to 929, and the deaths as 9·8 to 14·0.

The Table is also particularly interesting in another point of view, for it shows that the low ratio of sickness and mortality among the troops is mainly attributable to the extreme rarity of diseases of the lungs. As this is a very important fact, and as there appears to be a general misapprehension with regard to the physical effects of the Cape climate on diseases of the respiratory organs, it may perhaps be neither uninteresting nor useless to quote a few facts on this subject from Major Tulloch. He states, then, that in most of the reports on the Cape, the prevalence and fatal character of diseases of the lungs is strongly commented on, under an impression that, owing to the sudden changes of temperature and the violent gusts of wind to which Cape Town is exposed, the troops are more subject to them than in other colonies. The very reverse of this, however, is proved to be the case by the result of the comparison in the following valuable Table, which I also extract from the work before mentioned.

	Attacked Annually per 1,000 of White Troops at each of the following Stations.								
	Windward & Leeward Command.	Jamaica.	Gibraltar.	Malta.	Ionian Islands.	Bermuda.	Canada.	Nova Scotia and New Brunswick.	Cape District.
Diseases of Lungs, generally	115	18	141	120	90	126	148	125	98
Inflammation of Lungs and Pleurisy	23	14	42	34	32	37	43	35	30
Phthisis Pulmonalis..	12	13	$6\frac{5}{10}$	6	5	$8\frac{8}{10}$	$6\frac{5}{10}$	7	$5\frac{5}{10}$
Catarrhs, acute and chronic	75	55	86	74	49	74	89	73	58
Deaths annually per 1,000 of the strength, from all Diseases of the Lungs, at the same Station.....	$10\frac{4}{10}$	$7\frac{5}{10}$	$5\frac{3}{10}$	6	$4\frac{8}{10}$	$8\frac{7}{10}$	$6\frac{7}{10}$	$7\frac{1}{10}$	$3\frac{9}{10}$

This Table, as Major Tulloch observes, shows in a stronger light than any other description of evidence which can be brought forward, how erroneous is the impression that the climate of the Cape has any peculiar tendency to excite or aid in the development of pulmonary affections. On the contrary, the Table seems to prove that the aggregate mortality from this class of diseases is less than in any of the colonies mentioned. The Surgeon of Her Majesty's 6th Regiment, quartered in Cape Town, told me that he very seldom admitted men into his hospital with disease in the respiratory organs in any form.

I have dwelt on this subject somewhat fully, because I have reason to believe that medical men in India are sometimes averse to sending patients to the Cape who have the slightest tendency to this class of disease.

Upon the whole, I certainly formed a very favorable estimate of the value of the Cape as a sanatarium. There appeared to be but a very trifling amount of disease in any shape, and a most happy exemption from the diseases which surround us here. No cholera; no remittent or intermittent fever, and but very little continued fever; diseases of the lungs far less prevalent than in Great Britain or in any of the colonies named in the last Table; and no unusual prevalence of disease either of the brain or of the stomach and bowels. Its perfect freedom from remittent and intermittent fever may easily be explained by the fact of the total absence of marsh, and from the nature of the soil which is formed mainly of sand, decayed vegetable matter, and the *débris* of the neighbouring mountains, the partial decomposition of the granite making it in some places a little tenacious.

With regard to choice of residence, I would strongly impress upon invalids the very great advantage of frequent changes. Families going from India are too much in the habit of settling themselves down in one spot for the whole of their eighteen months. They do not like the fatigue of travelling, or even the slight worry of an occasional change of residence; yet I am convinced that such change is of the utmost importance.

If people, however, are determined not to move about, I would recommend Camp Ground or the higher spots of Wynburg as

the most desirable places for a residence in every medical point of view. The former is five miles from town, near the pretty village of Rondebosch, but is much higher and drier, and is situated on an open spot, over which the north-west wind of winter and the south-east of summer sweep freely without interruption.

Journeys a short distance into the interior, made by daily easy stages, are very beneficial; but if invalids will not undertake this fatigue, they might with very little trouble, and with very great benefit, move successively to Camp Ground, Wynburg, Kalk Bay, and Stellenbosch. The latter is an exceedingly pretty village, thirty miles from town, which was at one time much frequented by Indian invalids; but there is a fashion in this as in everything else, and latterly it has been too much deserted. If the heat of summer and dampness of winter do not recommend it at these seasons, the spring or autumn might, at all events, be passed there with great benefit.*

Green Point is not a bad residence for the winter; and, being within an easy distance, commands the services, at a very short notice, of all the medical talent of Cape Town.

It was my intention to have drawn the attention of the Society to the distinctive features of the climate of the Cape, as contrasted with that of Australia, the Neilgherry Hills, and Mahableshwur; but I find I have not sufficient leisure at the present moment for entering on so extended a subject.

In concluding this very brief and imperfect sketch of the general character of the climate of this highly-favored land,† I

* Stellenbosch, unlike Kalk Bay, has the advantage of being provided with medical assistance. Dr. O'Flinn is regarded as one of the ablest men in the colony, and as kind-hearted as he is able.

† The following remarks, contained in an able paper on the character and resources of the Cape, are so much to the point, and, in my opinion, so sound, that I cannot refrain from quoting them:—"We believe that the climate of the Cape is peculiarly well adapted to the constitutions of Europeans, weakened by long residence in India, or suffering under one of the many diseases which render life in that country a torment. It is, we believe, one of the finest climates in the world, equally pleasant and salubrious. It is removed alike from the two extremes of heat and cold; and the plague of *damp*, so severely felt in India and England, is almost unknown." "It appears to us that,

cannot refrain from expressing a hope that one of the many able professional men, resident on the spot, will some day give the world the benefit of his experience in an extended work on its medical topography.

looking at the entire range of the thermometer throughout the year, there is not one of our many colonial possessions whose climate is better suited to the requirements of the European constitution, and assuredly no climate so well adapted to the peculiar physical condition of those who have spent the best portion of their lives under the wasting influences of a tropical sun."—Calcutta Review, Vol. IV. 1845, pages 292 and 310.

Article VIII.

Some Remarks upon the Climate of Sukkur, in Upper Scinde, during the Months of April, May, June, and July 1846; *with an Account of the Fever prevailing there during those Months.* By N. Hefferman, M. B., H. M.'s 60th Rifles.

Presented through the Deputy Inspector General H. M.'s Hospitals.

The Military cantonment of Sukkur is situated to the S. W. of the Native Town of that name, nearly opposite to the Island and Fort of Bukkur, on the right bank of the Indus. At this place the river makes a bend, so as to sweep round three sides of the cantonment; and before the present bund or dam was built, the low ground to the N. W. was often overflowed during the inundation, converting the cantonment into an island. The whole of the cantonment space is elevated above the surrounding country, and consists of a low range of lime-stone hills. These hills formerly were the site of the tombs of the inhabitants, the ruins of them still remaining. The barracks, various public buildings, and private houses are now built on them, the barracks for the European troops on the highest range. During the winter months the climate is dry, cool, and bracing; so much so that fires are necessary in the houses. In the month of March the weather begins to grow warm, April is tolerably hot, and May, June, and July exceedingly so, the maximum heat being in June. During these months the weather is very hot and oppressive, and the rays of the sun very powerful. There are rarely any clouds in the sky, and the sun shines all day with great force on the lime-stone rocks, and they reflect back its rays with almost increased power. Towards evening they become very much heated, and continue to give out heat for several hours after sunset; so that the evening is often the most

oppressive part of the day. Owing to the course of the river round the cantonment, the air is loaded with moisture, without the body of water being sufficiently great to produce a cooling effect; and as the wind generally lulls completely at sunset, the air becomes a suffocating vapour, like steam. From all these causes there is, during the three last of the months alluded to, a constant height of temperature, averaging from 87° to 105° Farht., but often being much above this, and a degree of solar heat that can only be imagined by considering the effect of being surrounded on every side by heated lime-stone rocks. The coolest period of the whole twenty-four hours is the hour before sunrise, from 4 o'clock to 5 o'clock A. M. The temperature was then from 87° to 89°, and the air tolerably cool, and there was generally a light breeze, but sometimes the air was close and oppressive. Soon after sunrise there is generally a lull, and about 10 o'clock A. M. a breeze springs up from the S. E. or S. W., and sometimes, but rarely, N. E. or N. W.

From 10 A. M. to 6 P. M. the heat was intense, the thermometer in the shade in the open air frequently standing at 112°, and when exposed to the rays of the sun getting up to 137°. During the whole of this time there generally was a variable breeze, never very strong, unless when a squall came on, and there were frequent calms, particularly at noon. About sunset (6 P. M.) it often fell entirely, and in its place there was a hot steam from the river. At this period of the day the thermometer in the open air sometimes stood at 104°, and was generally about 100°; this was after the sun had sunk below the horizon. From this time, for several hours, the heat remained very great, and there was generally a calm, a breeze usually springing up at different times, varying from 9 to 11 P. M., sometimes not until midnight, and sometimes the calm continuing all night. On these occasions the heat was intolerable. At 10 o'clock P. M. the average temperature in the open air was from 94° to 97°.

During these months the atmosphere was in a highly electric state; and there were frequently thunder and lightning, at and after sunset, in the N. W. Often, after these had continued for some time, clouds collected in dense masses, and a whirlwind came on, carrying clouds of dust, but seldom followed by rain.

These dust storms were always preceded by close sultry weather, and a feeling of oppression, and followed by a much cooler and more agreeable atmosphere. During the four months there were fifteen dust storms; there was rain only five or six times, then generally only a very light shower; upon one occasion there was hail.

The barracks and hospitals were liberally furnished by Government with tatties, and the hospitals with punkas, in addition; but they were not used at night, and the soldiers lay down to sleep, if they could, at a temperature at or above blood heat.

The accompanying Tables show the temperature in the open air in the shade, with the degree of moisture in the atmosphere, the daily admissions and deaths of fever, and in the month of July the temperature in one of the barrack rooms during the day.

(See Tables Nos. 1, 2, 3, and 4.)

The 17th Regiment of Foot arrived at Sukkur on the 31st of March 1846, on its return from Bhawulpore. The sick were not numerous, being rather under the usual average of regiments serving in the East. The men had been marching for three months of cold weather, and were generally healthy and strong, as, in the month of December previously, when the regiment was ordered on field service, all the sick and weakly men were left behind in Bombay.

The number of sick soon began to increase, the majority of cases being fever. During the four months there were fifty deaths, thirty-six of them caused by fever. During the month of April the number of cases was not remarkable; the disease was simple continued fever, and no death was caused by it. In May it assumed a more violent character, and in June reached its height both in number and severity. In April 70 cases were admitted, none fatal; in May 128, of which 11 were fatal; in June 213, of which 15 were fatal; and in July 180, ten of which died. Total admissions 591, deaths 36; proportion of deaths to admission 1 to 16, or 6 per cent. During this period the admissions of other diseases were not numerous, being about the number and description of cases usually occurring in a hot climate; but towards

the end of July enlargement of the spleen and chronic dysentery began to be frequent.

In the beginning of August the regiment was moved down the Indus to Kurrachee, but had it remained at Sukkur, there is every reason to suppose that obstinate intermittent fever, with organic disease of the liver and spleen, and chronic dysentery, would have spread freely during the autumn months. These are the most unhealthy months at Sukkur, although not the hottest, owing to the subsiding of the inundation of the Indus, and consequent generation of malaria. The type of the fever varied a good deal: at first it was that of simple continued fever; after a time, when the weather became hotter, and the disease more severe, it assumed the remittent form; and towards the end of July cases of intermittent fever occurred. Where the disease attacked the same individual more than once, it assumed each time more of the intermittent character.

The cases may be arranged under three different forms, and this arrangement will be found to be of a practical nature, and nearly affecting the treatment.

1st. By far the majority of cases, including all that occurred in April, were simple continued fever, of a sthenic character. It was frequently ushered in by chills, but seldom by distinct rigor, and was characterised by hot dry skin, pains in the back and limbs, nausea, foul tongue, and thirst; and was easily subdued by the usual treatment of simple fever of warm climates. The only remark that need be made is with regard to venesection. It appeared to me to be very useful when the head-ache or pain in the back were severe, and the pulse hard; and there was nothing in the disease to prevent its use when indicated by the common medical rules.

2nd. The second class of cases were of greater severity, and generally of the remittent form, of a less sthenic character, and occurred when the weather had increased in heat. The attack generally commenced with a rigor; this was followed by nausea, head-ache, pain in the back and limbs, and hot skin. The pulse was sometimes full and hard, but less frequently than in the former class of cases. The head-ache was very severe, and in many cases attended by giddiness, and suffusion of the eyes.

After seven or eight hours, generally, a remission took place, but frequently without moisture of the skin, and never with a regular sweating stage, and the head-ache remained. The exacerbation came on sometimes every day, but more frequently on alternate days, and without much regularity in the period of the day. In more severe cases there was tenderness at the epigastrium, vomiting, delirium, rapid small pulse, foul dark-coloured tongue, and sometimes jaundice. In some cases the skin was cold and clammy, the pulse very weak, the tongue dry, and the countenance sunk. These cases were treated by the application of leeches to the head and epigastrium, shaving the head, the use of diaphoretics, with sponging of the surface of the body, venesection rarely, and in the latter stages blisters and stimulants. Quinine was used in the convalescent stages, and sometimes combined with calomel, to check the recurrence of the exacerbation. Most of these cases did well, but sometimes symptoms came on similar to the cases about to be noticed, when the disease terminated fatally.

3rd. The third class was by far the most formidable, though not the most numerous, and was characterised by the following symptoms,—sudden invasion, and rapid progress. The patient generally felt severe head-ache, and a feeling of great heat all over the body, coming on suddenly and without any preceding chill. When brought to hospital, the symptoms were burning heat of the surface, very rapid pulse, soft at first, full, but becoming small very quickly, suffusion of the eyes and contraction of the pupils; convulsive twitches of the extremities soon came on, followed rapidly by coma and stertorous breathing. The pupils now became dilated, the breathing became slower and more oppressed, and the patient died insensible. Up to the very last moment the heat of the body continued remarkably great. The action of the heart was always very violent and rapid, heaving up the sternum with a stroke that could be heard at several yards' distance. The progress of the disease was very rapid, twelve patients having died within nine hours after admission, and of these nine died within five hours. They were all carried to hospital immediately they fell ill.

It occurred in general in strong, healthy young men, but not

exclusively, and under different circumstances. Some were admitted before this peculiar train of symptoms had commenced, and some already insensible; two or three had slight fever, and had been under treatment for a few days previously; one was convalescent from fever; and three were labouring under chronic dysentery, and in a low, reduced state; but they also died in precisely the same manner. When the patient was sufficiently sensible to express his sensations, intense thirst was always complained of, with a remarkable failing of internal heat,— one patient complained "that all the blood in his body was in his heart." The rapidity and violence of the action of the heart, with the quick occurrence of stertorous breathing, was the most striking symptom; delirium very seldom occurred. There was generally blueness of the lips and fingers, and frothing of the mouth, although the skin was burning hot; there was often at the same time a profuse perspiration pouring off every part of the body.

The post-mortem appearances were the same in all the cases. There was a slight degree of congestion of the vessels on the surface of the brain, and a few ounces of serum effused in the arachnoid membrane of the surface, the ventricles, and upper part of the spinal canal. The brain when cut into presented a natural appearance, and was not unusually vascular, but in some instances softer than natural.

The lungs were remarkably congested, filled with blood and frothy serum, and did not collapse when the chest was opened; the heart and great vessels were filled and distended with liquid, dark-coloured blood; the heart weighed from nine to twelve ounces; the liver was usually congested and enlarged, but not otherwise diseased in any case; the mucous membrane of the stomach was in every instance vascular, having bright red patches towards the large end, and in many presenting a dotted and stellated appearance.

The intestines generally healthy, and the small containing bile.

Various plans of treatment were made use of, but the progress of the disease was so rapid that it was as difficult to treat as spasmodic cholera, which, indeed, it resembled in many points. Internal medicines of all kinds had no time to produce any effect; venesection appeared only to hurry the catastrophe,—the patient

was dead before leeches could be got to take any quantity of blood. The temporal artery was opened, and cupping glasses applied over it, but without benefit; blisters, and even liquor lyttæ produced no effect; and in one instance boiling water was poured over the shaved scalp, but without even producing redness of the surface.

Free venesection, used early, with the exhibition of an emetic of sulphate of copper, a turpentine enema, and immersion in a hot bath the moment that faintness was produced by the bleeding, appeared in a few instances to check the progress of the disease: some cases recovered that were treated in this manner, but others also recovered in which it was not used; and when the hot bath was not used, bleeding from the arm certainly appeared injurious. The great difficulty appeared to be to relieve the congestion of the internal organs without lowering the powers of the system in general, but particularly the heart and circulating organs.

There are several points of interest in the above disease, but the first and most obvious consideration is that it is an example of the effects of long-continued high temperature on the human constitution. There does not appear to have been any malarious influence, as all over the East the hot season is considered healthy; the river being daily increasing, there were no low moist banks exposed to evaporation. The majority of the sufferers were healthy young men, and were not suffering from the direct rays of the sun; they were rigidly confined to their rooms while the sun was shining, and in no case was the attack to be traced to exposure of this kind. In this respect it differed from *coup de soleil*, as well as in the gradual progress of the symptoms, and in the occurrence of convulsions always preceding the insensibility. In *coup de soleil*, also, there is not the same excitement of the heart, which was always remarkable. If it differed in these respects from *coup de soleil*, it also differed from most other diseases in the absence of a stage of incubation. It was a remarkable circumstance in most instances that there was no previous ailing; most of the patients had been in excellent health and spirits, and the powers of digestion in good order, as shown by the contents of the stomach and intestines. The amount of disease found upon examination in the brain does not appear to

be sufficient to account for the fatal result, and in fact is nothing more than is produced almost always by the act of death when the circulation is obstructed. The state of the stomach, also, is quite inadequate to produce such a result, whatever may have been the exciting cause on the changes taking place in the system : the first actual impression would appear to be produced upon the nervous system, but to be rapidly propagated to the organs of respiration. The circulation through the lungs being impeded, congestion of the brain is produced, increasing the mischief already taking place in the lungs.

The above remarks are an abstract of notes of the disease taken at the time at Sukkur, not intended for publication, but may be interesting at a time when we have so many troops in Upper Scinde and the Punjaub.

No. 1. *Tabular View of the Temperature, and Admissions and Deaths from Fever, at Sukkur.* *April* 1846.

Days.	Age of the Moon.	Thermometer. Highest Temperature.	Thermometer. Lowest Temperature.	Thermometer. Wet Bulb at Noon.	Fever. Admissions.	Fever. Deaths.	Remarks.
		deg.	deg.	deg.			
1		..	..	..	2	..	Weather moderately warm, with a clear sky in the day time, but light haze at sunrise and sunset; a steady breeze from the North or North-East, dry, but not hot; nights cool.
2		..	..	..	1	..	
3	1-4th	94	..	..	1	..	
4		98	75	..	1	..	
5		98	75	..	..	..	
6		98	78	..	3	..	
7		98	78	..	4	..	
8		..	76	..	2	..	
9		92	..	..	4	..	Cloudy and hazy.
10		96	77	..	1	..	Calm; after sunset of the 11th a violent storm, with clouds of dust, from the South-West, until midnight.
11	Full	96	76	..	..	..	
12		92	76	75	1	..	
13		95	74	69	3	..	
14		92	70	67	2	..	Sky clear; air dry; wind variable, occasionally warm; evenings becoming closer.
15		94	69	67	2	..	
16		97	78	75	3	..	
17		101	82	76	8	..	Very close and oppressive; clouds, thunder, and N. W. breeze at 4 P. M.
18		98	78	..	5	..	
19	3-4ths	91	77	71	5	..	Clouds, thunder, and a hailstorm at 4 P. M.
20		89	..	67	3	..	
21		90	64	69	4	..	
22		95	75	67	1	..	
23		99	73	68	1	..	
24	New	100	72	75	4	..	After the 23rd the weather increased in heat; the sky clear and bright; scarcely any wind during the day and early part of the night, but occasional hot puffs; about an hour after midnight a cool N. W. wind, lasting until about 7 o'clock A. M.
25		104	76	71	1	..	
26		105	84	75	4	..	
27		105	81	73	1	..	
28		105	85	76	2	..	
29		106	78	73	1	..	
30		108	84	79	..	..	
					70	..	Total.

N. B.—In all these observations the thermometer was in the open air, but in the shade, in an open veranda facing the North. A second thermometer was suspended beside it, with thin calico wrapped round the bulb, kept constantly moist by a bottle of water communicating with the calico by worsted threads. When the temperature is left blank, no observation was made.

No. 2. *May* 1846.

Days.	Age of the Moon.	Thermometer. Highest Temperature.	Thermometer. Lowest Temperature.	Thermometer. Wet Bulb at Noon.	Fever. Admissions.	Fever. Deaths.	Remarks.
		deg.	deg.	deg.			
1		106	82	79	1	..	Calm and close.
2		108	85	78	3	..	
3	1-3rd	110	86	80	2	..	
4		107	90	83	..	..	Cloudy, with a strong breeze in the morning; calm and sultry from noon to sunset, when there were heavy clouds and a dust storm from the N. E. till 9 P. M.; N. W. breeze afterwards.
5		103	86	79	1	..	Bright and clear sky; wind faint and variable, and hot during the day; a complete calm at and for several hours after sunset; a cool breeze towards morning.
6		104	87	81	3	..	
7		104	..	..	6	..	
8		..	..	..	6	..	
9		107	..	..	2	..	
10		108	84	79	5	..	
11	Full	108	..	80	3	..	
12		107	86	84	1	..	
13		105	88	78	1	..	
14		105	85	76	3	..	Strong S. W. breeze all the forenoon.
15		103	84	81	10	..	
16		105	83	82	4	1	
17		109	87	86	10	1	
18	3-4ths	112	89	89	2	1	Day close and calm; lightning clouds and dust storm from N. W. at sunset.
19		106	85	82	7	..	A dust storm from N. W. after sunset.
20		108	90	81	5	..	
21		106	88	82	2	..	
22		108	91	85	4	1	Forenoon hazy, cloudy, and calm.
23		108	89	83	7	..	Hazy, dusty, and windy.
24		108	84	86	6	..	
25	New	110	88	83	6	1	
26		..	..	..	9	..	
27		..	..	..	7	2	
28		..	87	..	4	1	
29		..	..	..	4	..	[General character of the weather in this month the same as during the last week in April.]
30		..	..	..	1	2	
31		105	..	83	3	..	
					128	10	Total.

No. 3. *June* 1846.

Days.	Age of the Moon.	Thermometer. Highest Temperature.	Thermometer. Lowest Temperature.	Thermometer. Wet Bulb at Noon.	Fever. Admissions.	Fever. Deaths.	Remarks.
		deg.	deg.	deg.			
1		..	..	85	5	..	
2	1-4th	106	88	85	3	..	
3		109	86	85	7	..	
4		105	..	87	7	..	
5		107	89	87	2	..	
6		106	88	86	5	..	A dust storm at 8 o'clock P. M.
7		108	91	86	6	1	A dust storm from the N. W. at 9 P. M.
8		107	88	85	10	2	
9	Full	108	88	84	6	1	
10		109	88	88	3	..	
11		107	87	87	4	2	
12		107	87	87	5	..	
13		109	90	84	4	..	
14		95	92	82	9	1	
15		107	89	85	8	2	
16	3-4ths	111	91	88	9	..	
17		112	93	87	16	2	
18		109	92	86	10	1	
19		111	92	90	11	1	Lightning at night.
20		110	91	87	15	1	A violent dust storm from N. E. at sunset.
21		109	92	85	3	..	Heavy clouds at 3 o'clock P. M., followed by a storm from N. E. by E.
22		104	89	87	6	..	
23	New	109	91	90	9	..	
24		107	90	88	9	..	
25		104	90	87	5	..	A violent dust storm at midnight last night.
26		107	91	85	9	1	
27		104	91	85	6	..	Hazy and windy; evening stormy.
28		101	87	84	11	..	Day stormy; evening calm and foggy.
29		90	88	81	4	..	Clouds, thunder, and heavy showers from 10 A. M. until evening.
30		98	85	85	5	..	A light shower about noon.
							[During the whole of this month the wind was variable and uncertain, and of little force; the air sultry and oppressive, and the nights close, hot, and calm.]
					212	15	Total.

No. 4. *July* 1846.

Days.	Age of the Moon.	Thermometer in the open air.			Thermometer in a Barrack Room.			Fever.		Remarks.
		Highest Temperature.	Lowest Temperature.	Wet Bulb at Noon.	9 o'clock A. M.	Noon.	5 o'clock P. M.	Admissions.	Deaths.	
		deg.	deg.	deg.	deg.	deg.	deg.			
1		..	88	..	90	93	95	5	..	
2	1-4th	106	89	..	91	95	97	5	..	Clouds and lightning in the evening; a storm at 9 P. M.
3		109	89	..	91	94	95	8	..	Cloudy, and close evening.
4		108	92	..	90	95	96	3	..	Thunder, and close evening.
5		101	88	..	89	92	95	5	..	
6		106	88	..	92	95	97	5	..	Stormy wind at 5 P. M.; weather cool; light clouds and haze at sunrise and sunset.
7		106	87	..	88	96	97	9	..	
8		..	84	..	90	94	97	4	..	A stormy breeze at 5 P. M., first hot, but becoming cool at 10 P. M., and blowing through the night.
9	Full	104	88	..	89	93	97	6	..	
10		102	88	89	90	94	96	8	..	
11		105	86	..	89	95	99	9	..	
12		102	86	86	88	93	98	10	..	A dust storm at 9 P. M.; heavy rain afterwards.
13		102	88	87	87	94	97	5	..	
14		104	90	85	90	93	98	3	1	
15	3-4ths	106	90	89	91	94	100	8	..	
16		105	88	89	90	93	99	8	..	
17		105	88	89	89	94	97	4	..	
18		104	87	87	88	94	98	10	1	
19		104	90	86	92	95	99	4	..	A dust storm at 9 P. M.; clouds and thunder at 5 P. M., close, calm, and oppressive.
20		105	89	84	90	96	98	9	..	Close; a dust storm and lightning at sunset.
21		106	92	90	94	97	99	4	..	
22		108	92	90	93	98	99	2	..	
23	New	104	90	84	94	96	97	9	1	Clouds and lightning at sunset.
24		106	93	90	96	97	..	8	5	
25		107	92	89	92	96	99	9	..	Clouds and lightning in the N. E. at sunset.
26		108	92	88	93	98	100	5	1	
27		106	90	90	92	96	98	2	1	[Breeze in the morning generally cool and stronger in this month; days very hot; evenings hot and stormy.]
28		104	88	90	90	95	99	2	..	
29		105	88	84	90	95	97	3	..	
30		106	88	..	89	94	99	8	..	
31		107	93	88	91	96	98	6	..	
								186	10	Total.

Article IX.

Notes on Bright's Disease of the Kidney, as observed chiefly in the Clinical Ward of the Jamsetjee Jejeebhoy Hospital, at Bombay. By C. Morehead, M. D., Professor of Medicine, Grant Medical College.

Presented August 1851.

It is now twenty-four years since Dr. Bright first published* the very important pathological facts, that dropsical affections are often dependent on certain structural changes of the kidney; that these lesions are characterised by albuminous urine, and are frequently attended by a cachectic state of the general system.

These statements were supported by the publication of 24 cases, collected chiefly in Guy's Hospital, during the two years which preceded the appearance of Dr. Bright's Report.

The accuracy of these opinions has been amply confirmed by Dr. Bright's subsequent contributions to Guy's Hospital Reports, as well as by the writings of Dr. Christison, and those of other hospital physicians, in the large cities of Great Britain, Ireland, and the Continent of Europe.

The diseases of the kidney characterised by albuminous urine, dropsical affections, and general cachexia, at present generally designated by the name of the eminent physician by whom they were first brought to notice, are acknowledged to be of frequent occurrence among those classes of the community who resort for relief to the public hospitals in Europe. They are, moreover, of very great pathological interest and importance; but, so far as I am aware, we have not as yet any published observations which go to show whether these diseases are frequently met with or not in the same classes of the inhabitants of tropical countries.

* Reports of Medical Cases, &c. London, 1827.

It is the object of the present communication to take the first step towards supplying this deficiency. It consists of the narrative of 31 cases of Bright's disease, which have passed under my observation, chiefly in the Clinical Ward of the Jamsetjee Jejeebhoy Hospital, during the last thirty-three months.* But it is not to be concluded that these thirty-one cases include all the instances of the disease admitted into the hospital during this period. It will be observed that of these cases the nature of five of them was incidentally discovered on dissection after death; and while I write these observations Mr. Sub-Assistant Surgeon Sebastian Carvalho has placed in my hands the notes of three other cases which have lately come under his notice, and that of Mr. Lisboa, in the course of their pathological inquiries in the hospital. These additional cases will, I doubt not, be submitted to the Society on some early suitable occasion. From these circumstances, then, it may be inferred, that cases of the disease have been occasionally overlooked, and that those now about to be narrated do not comprise the total admissions from Bright's disease during the last thirty-three months.†

It may, therefore, I believe, be admitted that this structural degeneration of the kidney is of as frequent occurrence among the hospital-frequenting classes of the native community in Bombay as in the large cities in Europe. But we may venture to draw a still more comprehensive inference than this; for we may not, on the authority of these cases, assume that the frequency of the disease in Bombay is to be attributed to the influence on the resident native population of the example of the

* During this period the total admissions into the Hospital may be estimated as follows :—

Hindoos	3,820
Musulmans	3,453
Christians, Portuguese natives of Goa or Bombay	1,889
Parsees	688
Women of all castes	1,627
Total	11,477
Average number of daily inmates in the Hospital	255

† Since these notes were written, seven additional cases have been received into the Clinical Ward.

lower classes of Europeans who frequent the settlement; and that it, therefore, is not to be viewed as an indigenous disease, but as one grafted on the people in consequence of the introduction and spread of the dissipated practices upon which it is known to be so frequently dependent in European countries.

The native population of Bombay is very varied, and fluctuating in its character, and on a perusal of the cases it will be seen that they include all castes, and the inhabitants of different and widely-separated countries, and that there are among them individuals who must have arrived in Bombay already affected with the disease, from Cabool, Khorassan, Scinde, Cutch, Kattyawar, Bengal, and the Coast of Africa. It is therefore not unreasonable to conclude that the present statement relative to Bright's disease is of more than local application, and that it may at least justify the suspicion that further inquiry will show that, equally as in Europe, it prevails in certain classes of the varied tribes and nations of the continent of Asia.

In noticing the leading circumstances connected with these cases, I shall arrange my observations under the following heads :—

I. On the months in the year in which the disease has been chiefly observed.

II. The classes of the native community who have principally suffered.

III. The period of life of those affected.

IV. The habits of the patients; the relation of the disease to scarlatina.

V. The principal secondary affections; the number of instances in which death has taken place in the way of coma.

VI. The morbid anatomy of the kidney in the fatal cases.

VII. The morbid anatomy of other organs.

VIII. The character of the urine.

IX. The treatment.

I.

On the months of the year in which the disease has been chiefly observed.

From the circumstance of the fluctuating character of the native population of Bombay, and of the advanced stage of

disease in which they seek for hospital relief, it is not to be expected that these cases will afford any information relative to any relation that may subsist between the commencement of this disease and particular atmospheric states; nay, more, they do not even afford information in regard to the months in which an aggravation of the secondary affections may be looked for. It might have been anticipated that an aggravation of these affections would have led to application for hospital relief chiefly in the cold months of November, December, January, and February, and then in the rainy months of June, July, and August; but this very probable relation is not supported by these cases. In the four cold months there were only eight admissions, and in the three principal rainy months only six; whereas in the months of September and October there were twelve admissions, in March and April four, and in May none.

It occurred to me that the more frequent admissions in September and October might be traceable to the circumstance that these are months at the opening of the fair season, in which Mahomedan pilgrims and others begin to arrive in Bombay in considerable numbers, and that the increase of admissions then might not have relation to the season of the year, but rather to the influx of additions to the population of individuals who had been subjected to the fatigues and exposure of travelling. A reference, however, to the particular admissions in September and October, does not sustain this view. It may be stated, then, that if there be any relation between the original or secondary affections and particular seasons of the year, it can only be ascertained from a much more extensive series of data than those now under consideration.

II.

The classes of the native community who have principally suffered.

Of the thirty-one cases of the disease, nine were Hindoos, thirteen Musulmans, four Portuguese, three Parsees, one Indo-Briton, one Purwaree.

The Hindoos were natives of the following districts:—

Cutch	1	Concan	3
Deccan	2	Benares	1
Jeypoor	1	Country not stated	1

The Musulmans were of—

African extraction	3	Bombay	1
Deccan	2	Khorassan	1
Scinde	1	Cabool	1
Mooltan	1	Country not stated	1
Bengal	2		

The Portuguese were natives of Goa, but resident in Bombay for longer or shorter periods. The Parsees were natives of Surat and Bombay, and the Indo-Briton was a native of Pondicherry, but long resident in the Deccan.

III.

The period of life of those affected.

The ages of the affected individuals may be thus stated:—between 20 and 31, there are 18 cases; between 31 and 41, 8 cases; 9 between 41 and 50; 3 between 50 and 55; and of 3 the ages are not stated.

IV.

The habits of the patients; the relation of the disease to Scarlatina.

In regard to those habits which are likely to have excited or predisposed to the disease, it appears that in eleven cases, the habit of spirit-drinking was admitted; in four others it was allowed, in association with the habitual use of opium; in four the use of spirits was denied, but that of opium admitted; in two ganja was habitually smoked; in two there had been secondary syphilis, in one associated with spirit-drinking, in the other with opium-eating; in none had there been mercurial influence. In four the use of spirits and of opium was denied; in eight cases there was no statement on these points recorded. The subject of Bright's disease was first brought by me to the notice of the Society in a short note, presented in the month of April 1849, in which the

following observation is made :—" It will be an interesting inquiry to determine whether habitual opium-eating may not predispose to or excite the disease, just as habitual spirit-drinking has been ascertained to do ; whether, in fact, the cachexia arising from habitual opium-eating may not in many instances be traceable to the presence of Bright's disease."

In the Edinburgh Monthly Journal of Medical Science, for the month of June 1850, there is a very interesting communication " on the habitual use of opium," by Mr. Little, of Singapoor. In this paper it is observed, relative to the effects of the habitual use of opium, " and among affections of the kidneys Bright's disease is not uncommon." The relation of this disease, then, to the habitual use of opium, is a question of interest, and deserving further investigation.

The frequent apparent connection between Bright's disease and the dropsical affections consecutive on scarlatina, has been a subject of remark by writers on Bright's disease. But I believe that the etiology of the disease, as observed in this part of India, must be independent of any relation of this kind, for scarlatina, if it is ever met with, must be of very rare occurrence indeed. I have myself never seen a case of the disease in India, nor, among the professional friends of whom I have made the inquiry, have I met one who felt certain that he had ever met with it.

V.

The principal secondary affections; the number of instances in which death has taken place in the way of coma.

Of the thirty-one cases,* there were affected with—

Dropsy, anasarca, ascites	24	Heart affections	2
Diarrhœa and dysentery	11	Erysipelas	1
Bronchitis	10	Pneumonia	1
Dyspepsia	4	Cirrhosis	1

In regard to the manner in which death took place in the fourteen cases which proved fatal in hospital, as well as in the

* It need hardly be observed that the aggregate of the statement exceeds the number of individuals affected, because several were the subject of more than one secondary affection.

other four who died immediately on leaving the hospital, or, in all probability, shortly afterwards, it appears that six died in a state more or less comatose ; the others chiefly from exhaustion.

VI.

The morbid anatomy of the kidney in the fatal cases.

In some the kidneys were enlarged,—the greatest weight was 11 ounces,—in others they were smaller than natural; in the greater number they were of normal size. They were in several instances lobulated, in more mottled red and white, and presenting a granular surface on removal of the capsule. On making a vertical incision of the organ, the surface showed a well-marked encroachment of the cortical portion on the tubular, and this was in general more marked in the central parts of the kidney than towards the extremities. In one instance, that in which the kidney was of largest size, the surface of the incision had a fatty appearance, but whether from fatty degeneration or not was not ascertained by the microscope. In three cases, in addition to other structural changes, there were small cysts here and there, throughout the organ.

VII.

The morbid anatomy of other organs.

Of the fourteen cases of which the post-mortem appearances are described, the following morbid states were present, in addition to the structural degeneration of the kidney :—

Dilatation of the right ventricle, dilatation and hypertrophy of the left ventricle	1
Opaque deposit on the inner surface of the aorta	2
Pericarditic adhesion	1
Pleuritic effusion and hepatization of the lung	1
Emphysema of the lung	1
Cirrhosis of the liver	1
Peritonitis from paracentesis	1
Inflammation of the mucous membrane of the large intestines, as shown by increase of vascularity, ulceration, and granular deposit	3

VIII.

The character of the urine.

In all the cases in which the urine was carefully examined, its albuminous state and low density have been well marked. It has been for the most part of pale amber or lemon colour, clear and neutral, ranging in specific gravity from 1.003 to 1.018. In quantity it has generally ranged from 20 to 40 ounces in the twenty-four hours; and in cases beyond these limits it has more frequently exceeded 40 ounces than fallen short of 20.

It will be observed that for the most part the specific gravity* of the urine falls below what has generally been observed of this disease in European countries; but on this point it is inexpedient at present to enlarge, for as yet we are not possessed of any series of observations which go to show the reaction, the density, the quantity of urine in normal states of the system in the inhabitants of the warmer climates of the globe. It is reasonable to suppose that in the inhabitants of India, with their varied habits, as regards food, their residence in a warmer atmosphere, we may look for a normal standard of the qualities of the urine different from what obtains in European countries. Mr. Sub-Assistant Surgeon Carvalho is at present engaged in a series of observations on this subject; and it is to be hoped that before long, through his industry, and that of the other graduates of the Grant College, this, and other questions relative to the influence of climate and other agencies on the physiological and pathological actions of the system, in tropical climates, may be gradually elucidated.

In two cases (XXV. XXVI.) the albuminous state of the urine was not presistent: it presented itself in association with accessions of intermittent fever, and disappeared when the recurrences of fever were prevented by the use of quinine and other means. It may, I think, be very fairly questioned whether there existed in these cases any structural disease of the kidney. There was, probably,

* The specific gravities are noted as observed with an urinometer, graduated for a temperature of 60°. These observations have been made at a mean temperature of about 80°; and may be sufficiently corrected by an addition of 2° to each specific gravity noted.

in association with the febrile disturbance, merely a state of congestion of the organ, which disappeared on the removal of the febrile condition : a state of the kidney analogous probably to that which we may believe exists in many instances of the albuminuria of dropsy, consecutive on scarlatina. This view is confirmed by the following case of a Parsee, by name Khodadad, in whom the albuminous state of the urine was less in degree and still more transient.

He was 40 years of age, a native of Persia, and addicted to the use of spirituous liquors, and admitted into the hospital on the 1st November 1848. He had been affected with febrile symptoms for about 10 days, attended with nausea, pain of the large joints, and of the loins, and with a miliary eruption on different parts of the body, and some enlargement of the spleen. For several days after admission he was affected with occasional febrile accessions; the urine was scanty, of specific gravity 1.020, and gave a slight flaky deposit under heat and nitric acid. He left the hospital cured on the 27th November, there having been no traces of albumen in the urine for about 20 days before his discharge.

While these cases confirm the generally-admitted fact that there may be the occasional and transient occurrence of albuminous urine, independent of confirmed structural disease of the kidney, cases VIII. and IX. support the converse truth—that in the advanced stages of Bright's disease we may casually examine the urine, and find that it gives no traces of albumen. The low specific gravity (1.004) of cases VIII. and IX. would no doubt to observers in European countries have been a most suspicious circumstance ; but though calculated at all times to arouse attention, this low density of the urine will, I believe, be found not to be of the same significance in India. I expect that it will appear that urine of very low specific gravity is not an unfrequent occurrence in the normal states of that secretion in some of the classes of the native community of Bombay ; but, as I have already observed, the discussion of this point would be at present premature.

In only one case of the series (XXIX.) does it appear that hœmaturia was at any time observed.

IX.

The treatment.

On this point these cases afford no instruction : in all, the disease of the kidney had probably advanced so far as to be beyond the influence of medical treatment. The secondary affections, inflammatory and dropsical, were treated on ordinary principles; and, in general, they were for the time removed. The chief impression on the dropsical symptoms was made by the use of diuretics.

The cases narrated are all of males, but from this no inference can be drawn relative to the infrequency of the occurrence of the disease in females. The proportion of males to females in this hospital is 6 to 1 ; and, moreover, the disease has not been looked for among the females with the same care as among the males. I make this statement in order to show that in this communication the data for comparison on this point do not exist.

CASE I.—*A diver by occupation ; anasarca ascites ; urine of low density and albuminous ; dilatation of the right ventricle of the heart ; hypertrophy, and dilatation of the left ; the kidneys enlarged, lobulated, in a state of yellow granular degeneration.*

Suliman Seedee, a Musulman, 25 years of age, an inhabitant of Zungibar, and resident in Bombay about a month. He had followed the occupation of a diver and a blacksmith ; been in the habit of drinking spirituous liquors, and eating opium occasionally, but not habitually ; had, however, been an habitual smoker of ganja. About five years before he came under observation he was the subject of dropsical symptoms for about ten days, which made their appearance after he had been engaged in his occupation of diver. There was no recurrence of them till about five months before his admission into the clinical ward, on the 7th March 1849. Then they had been preceded by febrile symptoms, coming on frequently with chills, not terminating by sweating, and attended with scanty urine. On admission there was general anasarca and ascites ; the respiration was somewhat hurried, and dry bronchitic rales were heard in different parts of the chest; the impulse of the heart was rather increased, but the

sounds were natural. He admitted some uneasiness of the loins; the urine was said to be copious, and to be passed frequently; the pulse was of good strength; there was no febrile heat; the bowels were regular, and the tongue moist and clean. He continued under treatment till the 24th of April, when he died. During the first month the urine ranged in quantity from 40 to 80 ounces and upwards in the twenty-four hours, was clear and pale, sometimes alkaline, at others neutral, and always gave a considerable flocculent deposit under heat and nitric acid. The dropsical symptoms were stationary; a sense of uneasiness across the chest was frequently complained of, attended with some degree of dyspnœa, cough, and crepitous rale in both dorsal regions.

On the 17th April præcordial uneasiness was complained of, and there was a degree of increased dulness over the region of the heart, the action of which was accelerated, and the sounds confused. The pulse was very small; and now the urine decreased in quantity, and was reduced to 9 ounces; the dropsical symptoms, the dyspnœa, and asthenia increased, and diarrhœa was superadded. He became somewhat drowsy, and died on the 24th April.

The treatment consisted of diaphoretics, diuretics, and purgatives; rubefacients, antimonials, and on two occasions leeches were used for the chest affection, and latterly stimulants were exhibited.

Inspection seven hours after death.—Chest.—The pericardium contained 8 ounces of serous fluid; the cavities of the right side of the heart were dilated, and filled with blood; the left *ventricle* was also dilated, and its walls hypertrophied; the valves were all healthy; the inner surface of the aorta near to the arch was roughened from yellow deposit; the lower lobes of both lungs adhered to the costal pleura firmly posteriorly; and a considerable part (more of the right lung) of these lobes was in a state of red hepatization.

Abdomen.—Serous effusion, but to no great amount, was present in the cavity of the abdomen; the liver was enlarged, indurated, and its incised surface mottled; both kidneys were slightly enlarged, and somewhat lobulated; their surface, when denuded of the capsule, was mottled dark red and yellow, and was granu-

lar; the kidneys when vertically incised showed much granular degeneration; the surface being mottled red and yellow, granular, with confusion of the tubular and cortical structures. This state was most marked in the central part of the right kidney; it was more diffused in the left one. In both, in one or two places, there was tubular structure, not encroached upon, but the cortical portion external showed commencement of yellow granular deposit.

Remarks.—The question suggests itself,—Had the dilatation of the right, the slight hypertrophy and dilatation of the left ventricle, relation to the occupation of diver, which this individual had followed?

CASE II.—*Dropsical symptoms; urine of low density and albuminous; bronchitis, diarrhœa, periostitis, erysipelas, as secondary affections; kidneys large, and in a state of yellow granular and fatty degeneration; an opium-eater.*

Hurrichund, a Hindoo writer, of 30 years of age, a native of Cutch, and resident in Bombay for about 7 months, was the subject of primary and secondary syphilis about five years before he came under observation, but no traces of the disease were present. He admitted that he had been in the habit of eating opium to the extent of 25 grains daily for about four years, and that he occasionally drank spirits. About four months before his admission into hospital he had been affected with dropsical swellings, which had disappeared without any medical treatment. About a month before admission he had experienced pain in the lumbar region, and the dropsical symptoms had returned.

He was admitted into the clinical ward on the 22nd April 1849. There was anasarcous swelling of the lower extremities; the abdomen was full, but without distinct fluctuation; the respiration was calm; there was no dulness on percussion of the chest, the sounds of the heart were natural, but an occasional crepitus mixed with the vesicular respiration in the dorsal regions, chiefly the left; the pulse was soft; the skin cool; the tongue moist; the bowels were reported to be regular; the urine copious; and the pain of the lumbar region formerly complained of had ceased. On the 24th the urine was amber-coloured, of specific

gravity 1.007, and gave an abundant flocculent deposit under heat and nitric acid. During the seven months that he was under treatment the quantity of urine passed was noted daily, and there are upwards of sixty observations on the character of the secretion to be found in the diary of the case. The urine fluctuated a good deal in quantity; it was seldom less than 20 ounces in the twenty-four hours, and during the months of June and July very generally amounted to about 5 pints; whether this great flow of urine was due to the diuretic remedies which he was at the time using, or to the influence on the cutaneous surface of the cold damp air of the monsoon season, is very doubtful. For the most part, the specific gravity of the urine ranged from 1.003 to 1.012, and it was always very albuminous. To the low density of the urine there were several exceptions, chiefly in the month of May, when the urine was about 20 ounces in quantity: on these occasions the specific gravity ranged from 1.018 to 1.030, and then the urine was generally of a deep brown colour, and very albuminous, and sometimes febrile symptoms were present. Throughout the course of treatment the dropsical symptoms were more or less present; bronchitic symptoms were also at times complained of, at others diarrhœa, sometimes dysenteric in character; there was also periostitis of the sternum, and erysipelas of the left thigh, in the month of October, attended with febrile symptoms, which tended much to increase the asthenic state. Febrile symptoms recurred about the 10th of November, attended with occasional delirium; the dropsical effusions increased, and he died, with much hurry of the respiration, but without distinct coma, on the 12th November. The dropsical state was treated with diaphoretics and diuretics, and the other indications as they arose were attended to.

Inspection eight and a half hours after death.—The body swollen from anasarca.

Chest.—There were about 7 pints of clear serous fluid effused into the sac of the right pleura, and about 1 pint into that of the left; the right lung was compressed against the spinal column, did not crepitate on pressure, but was soft and tough; the left lung was crepitating. There was no redness, or other trace of

imflammatory action observed in any part of the pleura; there were about 3 ounces of clear serous fluid in the sac of the pericardium, but no redness of the membrane, or other trace of inflammation; the heart was of smaller size than natural; and the mitral valves were somewhat thickened.

Abdomen.—There was about a pint of serum in the cavity of the abdomen; the liver, not enlarged, was in the first stage of hepatic congestion; the spleen was enlarged; both kidneys were much enlarged, the left one most so—it weighed 11 ounces; the right one weighed 8 ounces; both were somewhat lobulated, externally mottled red and yellow, but not granular; on incising the kidneys, the cortical portion of both was in increased proportion, was mottled red and yellow, and was somewhat granular and fatty in appearance; the tubular portion was encroached upon, but was quite distinct.

Head.—The vessels of the piamater were somewhat injected, and there was slight serous effusion into the sub-arachnoid space.

Case III.—*Gastro-enteritis, anasarca, and ascites; urine of low density and albuminous; paracentesis; death from peritonitis; kidneys small, in a state of yellow granular degeneration.*

Imam Khan, a Musulman Hakeem, of 30 years of age, a native of Dowlutabad, and resident in Bombay for two years and a half. He was in very indigent circumstances, and often very badly supplied with food; was in the habit of smoking ganja and tobacco, but did not indulge in the use of spirituous liquors. For about eleven days before his admission into hospital he sufferred from febrile and dysenteric symptoms. He was admitted into the clinical ward on the 25th June 1849; he was reduced in flesh. The respiration was calm; there was no dulness on percussion of the chest; and vesicular respiration was general and unmixed; the abdomen was collapsed, tender on pressure, and slightly resistent; and an indurated enlargement was perceptible for two inches below the margin of the left ribs; the skin was of natural temperature; the tongue rather florid at the tip and edges; the pulse small and easily compressed; he complained of frequent calls to stool, and the evacuations, passed with griping

and straining, were said to contain blood and mucus; he also suffered from occasional vomiting after eating. At first attention was directed to the removal of the dysenteric symptoms. As these improved, bronchitic symptoms appeared; and on the 11th July there was puffiness of the face and œdema of the feet. The urine was now examined, and was found to be of pale amber colour, of specific gravity 1.004, and albuminous; it was frequently examined during his illness; it varied a good deal in quantity, frequently above 40 ounces in the twenty-four hours, and latterly often below 20, the specific gravity ranging from 1.004 to 1.018, and the presence of albumen always clearly indicated. Diarrhœa succeeded an alleviation of the bronchitic symptoms, continued present for several weeks in succession, and often in an aggravated degree; the dropsical symptoms increased, there was troublesome dyspnœa; the abdomen swelled, and became tense and fluctuating; paracentesis was had recourse to on the 9th December, and 14 pints of clear serous fluid, of specific gravity 1.006, and giving a copious deposit under nitric acid, was drawn off; on the 11th there was general tenderness of abdomen, with a very feeble pulse. This increased; and he died on the 12th.

Inspection eleven hours after death.—Head.—There was considerable serous effusion in the cavity of the arachnoid and in the sub-arachnoid space; the vessels of the piamater were congested; and there was about an ounce of serum in the ventricles of the brain.

Chest.—There was about a pint of reddish serum found in the sacs of the pleura; both lungs collapsed and felt crepitating under the finger; the right lung was in part adherent to the costal pleura, but there were no adhesions of the left lung; the heart was contracted and smaller than natural; the valves were healthy, and there was no hypertrophy of any of the walls; about 2 ounces of serum were found in the sac of the pericardium.

Abdomen.—About 10 pints of serum in the cavity of the abdomen; the peritoneal covering of the small intestines presented in some places a dotted red appearance, and shreds of recent coagulable lymph were found upon its surface and between the convolutions of the intestine, leading to tender adhesions between the convolutions, and between the surface of the intestines and

the anterior wall of the abdomen ; the peritoneal aspect of the trocar wound appeared to have healed, and did not yield to the passage of a blow-pipe. There was no blush of redness or greater trace of inflammatory action around the trocar wound than elsewhere in the peritoneal lining of the anterior parietes. The convex surface of the liver was adherent to the peritoneal covering of the diaphragm by a thin layer of lymph ; the organ was smaller and harder than natural, and yet presented appearances of congestion. The kidneys were smaller than natural, and each weighed 3 ounces. On removing the capsules the surface presented a pale buff colour, mottled red and granular ; on incising the right kidney the cortical part presented a pale buff colour, with a mottling of red, it was slightly granular, and in parts encroached considerably on the tubular portion ; the left kidney when incised presented much the same appearance as the right, with this exception, that the cortical portion was pale, and the tubular less red.

Remarks.—In this case we have the fatal result hurried on by peritonitic inflammation, the consequence of the operation of tapping. The case in this respect contrasts strikingly with No. IV., in which paracentesis was eight times performed, and yet no peritonitis excited.

There is an omission in the post-mortem examination: there is no notice of the state of the gastro-intestinal mucous lining.

CASE IV.—*Anasarca and ascites ; urine of low density and albuminous ; was eight times tapped ; kidneys in a state of yellow granular degeneration.*

Ahmed Senna, a Musulman beggar, 30 years of age, a native of Scinde, and originally following the occupation of a cowherd. About three years before he came under observation he suffered from fever, while in Scinde, and was subsequently on several occasions affected with œdematous swelling of the feet and ankles ; he denied being addicted to the use of spirituous liquors, and stated that he had never used them till two months before admission, when he was advised to do so moderately, for the relief of the dropsical symptoms. He was in the habit of smoking tobacco, but not of eating opium. Four years before admission

he had been the subject of syphilis, for which he had been salivated. He was admitted into hospital on the 28th September 1849. There was general anasarca, and the abdomen was much swollen, tense, and fluctuating. He was under treatment in hospital till the 19th of January 1851. Throughout this period the urine was generally less than 20 ounces in the twenty-four hours, was pale, of specific gravity (varying with the quantity) from 1.007 to 1.015, and giving a flocculent deposit, more or less copious, under heat and nitric acid.

From the 10th October 1849 to the 10th November 1850 he was eight times tapped, and about 100 pints of fluid, in all, evacuated. After the first tapping it was discovered that the spleen was much enlarged, reaching beyond the umbilicus in the median line, and as low as the crest of the ilium ; but after the latter tappings it was found to have considerably decreased in size.

In the months of July and August 1850 he suffered from diarrhœa, sometimes dysenteric in character ; and during this time the fluid re-accumulated slowly in the abdomen. He died from exhaustion, and without coma. The treatment was very varied, consisting of purgatives, diuretics, with tonics and stimulants, but without any advantage. The operation of tapping was in each instance performed at the patient's urgent request, to relieve the discomfort attendant on the distension of the abdomen.

Inspection.—Abdomen.—There were about 26 pints of serous fluid in the sac of the peritoneum ; the diaphragm was pushed up by the effusion, as high as the interspace between the third and fourth ribs. The liver was much reduced in size, and hanging by its ligaments, and separated by a considerable interspace from the concave surface of the diaphragm ; bands of old adhesions united the lower part of the right lobe of the liver to the diaphragm. After detaching the liver from its connections, it weighed 28 ounces ; the external surface of the liver was pale, and its peritoneal covering opaque ; the surface was also granular, chiefly that of the left lobe ; the tissue when incised appeared dense and compressed, and pale, but had none of the lobulated appearance of cirrhosis ; there were some adhesions of the body of the gall bladder to the duodenum.

Spleen.—It was of about the natural size, weighed 11 ounces,

and its capsule was opaque and thickened; its texture was very indurated, and its incised surface appeared red and abundantly studded with white spots and streaks of fibrous tissue. At the upper end the fibrous constituent was so abundant as to form a pale indurated nodule, of about the size of a pigeon's egg.

Left kidney.—It was somewhat larger than the right, and weighed about 4 ounces. On removing its capsule its surface appeared somewhat lobulated, mottled red and yellow, and granular; when incised it presented a surface also mottled red and yellow, but not granular; the tubular portion was encroached upon by the cortical, chiefly at the central parts; at the upper end there was a cyst, of about the size of a pea.

Right kidney.—It was somewhat smaller in size, and weighed $3\frac{1}{2}$ ounces; the external and internal appearances were very similar to those of the left, but more marked in character. The colon was contracted, and the small intestines were gathered together in the centre of the abdominal cavity.

Chest.—The right lung was firmly adherent by adhesions to the costal pleura, but its texture was spongy and crepitating; the left lung was also healthy. The heart was of about the natural size, and weighed 8 ounces; there were some opaque patches on the surface of the right ventricle; the aortic and mitral valves were healthy.

CASE V.—*Anasarca and ascites; urine of low density and very albuminous; sunk under diarrhœa; the kidneys in a state of yellow granular degeneration; the mucous coat of the colon and ileum with dotted red patches, and granular deposit: a spirit-drinker.*

Shaik Abdoola, a Mussulman sailor, of 30 years of age, addicted at one time to the excessive use of spirituous liquors, but not to that of opium or other narcotic drug; had for two months before his admission into hospital, on the 28th May 1850, suffered from frequent vomiting, and latterly from œdema of the feet and legs. He was received into the clinical ward on the 15th June, when the abdomen was somewhat full, soft, and with an indistinct sense of fluctuation, but without any induration below the margin of either ribs. The feet and legs were also œdema-

tous; the respiration was calm; the sounds and impulse of the heart were natural, and there was no dulness on percussion of the chest; the pulse small and soft; the tongue moist and clean. He was the subject of a large reducible scrotal hernia of the left side, which had commenced three years previously. He continued under treatment till the 27th June, when he died. The urine in the twenty-four hours was generally above 50 ounces, was clear amber-coloured, of specific gravity from 1.007 to 1.012, and very albuminous. He became affected with diarrhœa, which increased, and caused death in the way of asthenia. The treatment was chiefly directed against the diarrhœa.

Inspection.—The body was emaciated.

Head.—There was some serous fluid effused in the sub-arachnoid space.

Chest.—The lungs were collapsed and crepitating; the heart small in proportion to the body.

Abdomen.—The large intestines generally were contracted; their coats were thickened; the omentum was contracted and matted over the colon; the inner surface of the large intestine was rugous and irregular, dark grey-coloured, variegated of different shades, with bright red patches, and spots here and there, chiefly in the cœcum; the mucous coat had a granular appearance, and was firmly adherent to the subjacent coat. For a foot and a half, the inner surface of the lower end of the ileum presented the same appearance as the large intestine; above, for about three feet, the inner surface of the ileum was rugous, of a dark red colour, with grey granular patches here and there. The portions of the ileum just described occupied the large scrotal tumour. The stomach was contracted, and the mucous coat was rugous, dark grey-coloured, with some dark red patches, covered with adhesive mucus. The liver was granular externally, and hard under the scalpel; the left lobe was very small; the left kidney was larger than the right; its external surface was mottled red and yellow, the cortical portion buff-coloured and granular; the red colour of the tubular portion was quite distinct; the right kidney presented the same appearances as the left. The spleen was small, and heavier than natural.

CASE VI.—*Anasarca with ascites; urine of low density, and generally albuminous; died comatose; kidneys small, with excess of cortical portion.*

Antonio de Souza, of 55 years of age, a Portuguese inhabitant of Goa, but resident in Bombay for about eight years, and occupied as a servant in a baker's shop. For many years he had been in the habit of drinking about three ounces of spirits daily; was the subject of incomplete paralysis of the right arm from his boyhood, but with this exception had enjoyed good health till about three weeks before his admission into the hospital, on the 19th February 1849, when he had become, consequent on exposure to cold, he believed, the subject of intermittent fever, which, after fifteen days, was followed by dropsical symptoms.

State on admission.—He was somewhat emaciated, but with general anasarca, and the abdomen full and fluctuating. The respiration was somewhat hurried, and there were dry and moist bronchitic rales general on both sides of the chest, and obscuring the sounds of the heart; the pulse was feeble, and somewhat frequent; the tongue slightly coated, but moist, and the skin of natural temperature. During his stay in hospital the urine ranged in quantity from 12 to 30 ounces, was generally clear, sometimes of acid, at others of alkaline reaction; of specific gravity from 1.007 to 1.017, and very generally gave a scanty flocculent deposit with heat and nitric acid; this deposit, however, was sometimes absent. He continued in hospital till the 15th of March, when he was discharged, at his own desire, with the dropsical symptoms somewhat less, and the bronchitic rales considerably alleviated. He was treated with stimulant diuretics, of which squills was generally a constituent, and also at one time the ferri-potassio tartras; rubefacient applications were also used to the chest. He applied for re-admission on the 27th of March. The emaciation and the dropsical symptoms had much increased; the respiration was more hurried and oppressed, and the cough more urgent; the pulse was very feeble, and urine was very scanty. Under the use of 8 grs. of sesquicarbonate of ammonia, a drachm of spiritus ætheris nitrici, with camphor mixture every third hour, and 4 ounces of arrack daily, and an adequate diet, he speedily began to improve; the pulse gained somewhat in

strength; the breathing became less oppressed; the urine increased to 60 ounces and upwards in the twenty-four hours; and the dropsical symptoms gradually lessened. On the 5th of April the acetate of potass was substituted for the sesquicarbonate of ammonia; the urine still increased; and the dropsical symptoms had altogether disappeared by the 10th of April; and on the 13th quinine and the muriated tincture of iron were substituted for the diuretic; and he was discharged on the 15th at his urgent request. The urine was in general clear, sometimes alkaline, of specific gravity from 1.006 to 1.017, and was, except on one or two occasions, unaffected by heat or nitric acid.

He was admitted again into hospital on the 23rd October 1849. The face was puffed; the feet and legs œdematous; the abdomen swollen. He complained of cough and muco-puriform expectoration. Sounds of the heart natural, impulse feeble. He stated that since his discharge from hospital he had used spirituous liquors moderately, had been to Goa, and been exposed to the inclemencies of weather, to which he attributed the return of the dropsical symptoms, as well as irregular febrile accessions, to which he was also subject; the pulse was very feeble; the asthenic and bronchitic symptoms increased. He became comatose on the 29th, and died on the 30th. The urine during the time he was under treatment on this last occasion ranged in density from 1.011 to 1.013, and was albuminous.

Inspection twenty hours after death.—Head.—The vessels of the piamater were congested, and there was more than the natural quantity of serous fluid in the sub-arachnoid space, but none in the ventricles. On incising the brain, numerous bloody points appeared, but no softening was observed.

Chest.—The lungs adhered firmly to the costal pleura, and to the diaphragm, and when incised gave out much sero-puriform fluid on pressure. The substance was crepitating, and the mucous membrane of the bronchial tubes was of a dark red colour.

Heart.—It was well covered with fat, chiefly over the left ventricle; the right ventricle was somewhat dilated; the left slightly hypertrophied; no disease of the valves, but the ascending aorta

was somewhat dilated with opaque deposit, in parts ossific, on its inner surface.

Abdomen.—There was about a pint and a half of clear serum found in the cavity; the liver was somewhat smaller than natural, with some degree of irregularity on its external surface, mottled dark red, and indurated in texture, under the knife.

Kidneys—Were smaller than natural. In the cortical portion of the left kidney there were two cysts, each of about the size of a small bean, but no distinct granular degeneration was found in any part. The cortical part of the right kidney was mottled red and buff on its surface, and it somewhat encroached on the tubular portion, but it was not granular, and there was an appearance of commencing cysts in some places.

CASE VII.—*Febrile symptoms, followed by anasarca and ascites, and dysenteric symptoms; urine of low density, and albuminous; death by coma; the kidneys in a state of yellow granular degeneration; the mucous membrane of the large intestines ulcerated.*

Elepa, a Hindoo shopkeeper, of 50 years of age, an inhabitant of Hydrabad, in the Deccan, but for 25 years resident in Bombay; not addicted to the use of spirituous liquors. He stated that about two months before he came under observation he left Bombay, in good health, on a pilgrimage to Nassick; that about fifteen days after his arrival there, he, consequent on exposure to wet, became affected with febrile symptoms and diarrhœa, followed by œdema of the feet and legs. He was admitted into hospital on the 29th July 1850, feeble, and reduced in flesh; the feet and legs were œdematous; the abdomen full, and with distinct sense of fluctuation; there was no dyspnœa or sign of disease of the lungs or heart; the pulse was small and thready. The day after his admission the urine passed amounted to 14 ounces, was pale, neutral, of specific gravity 1.010, and gave a copious flaky deposit under nitric acid, but less under heat; and such continued to be the character of the urine whilst he was under treatment. On the 8th of August dysenteric symptoms set in, and he died on the 17th August, having been very drowsy for twenty-four hours before death.

Inspection twelve hours after death.—Head.—There was slight turgescence of the vessels of the brain, but the substance of the organ was of natural consistence.

Chest.—There were old adhesions on both sides, but chiefly on the right, and the base of this lung was also adherent to the diaphragm; there were about 2 ounces of fluid found in the cavity of the pericardium; the heart was small, but healthy in structure.

Abdomen.—There were about 2 pints of clear serous fluid in the sac of the peritoneum; the liver was of natural size and consistence, but its incised surface showed the presence of congestion in the second degree; upon its external surface there were two or three opaque puckered patches of cartilaginous consistence. The spleen was smaller than natural, and its substance healthy.

Kidneys.—The left was somewhat larger than the right, and on removing the capsule the external surface presented a granular appearance, and was somewhat mottled. When incised the cortical portion was found distinctly to encroach upon the tubular, which was here and there of a dark red colour, and arranged in distinct bundles. The right kidney was smaller in size, and presented very much the same appearance as the left, with the addition of two or three small cysts, of about the size of a split pea. The apices of some of the papillæ were also somewhat indurated and fibrous in appearance. The rectum was contracted, and its mucous membrane was thickened, and presented irregular ulcerations, the surfaces of which were covered with a deposition of granular lymph; the mucous membrane of the descending colon and sigmoid flexure was also ulcerated, but the ulcers were more follicular in character. The mucous membrane of the remaining portion of the large intestine was attenuated, and there were transverse striæ of vascularity seen, apparently an early stage of the inflammatory action, which in the rectum had passed on to ulceration.

CASE VIII.—*The subject of chronic dysentery; induration of the right lung; ulceration of the colon; yellow granular degeneration of the left kidney; the right displaced, and situated in the hollow of the sacrum.*

Farahan, 36 years of age, an Arab sailor, two years resident

in Bombay, and accustomed to the free use of toddy and spirituous liquors, was, after fifteen days' illness, admitted into the clinical ward, on the 10th December 1848, affected with dysentery. He continued under treatment, with occasional temporary improvement, till the 12th February, when he died. On the 18th of January there was first noted some degree of dulness of the subclavian and scapular regions of the right side; this extended and increased, and was attended with bronchial respiration, &c., but there was little complaint of cough. The urine was only noted on two occasions, on the two days immediately preceding his death; then it was clear, neutral, not copious, of specific gravity 1.004, and unaffected by heat or nitric acid.

Inspection twelve hours after death.—The body emaciated.

Chest.—The upper lobe of the right lung adhered to the posterior parietes of the chest opposite to the second, third, fourth, and fifth ribs. The third lobe adhered in part also of its base to the diaphragm; the upper lobe was in a state of red induration, speckled with black patches (coloring matter of the lung); the lower lobe partly solidified from sanguineous engorgement; the left lung had an emphysematous fringe at the thin margin of the lower lobe; the posterior part of the lung was dark and congested with blood.

Abdomen.—Upwards of a pint of serum was effused in the cavity. The large intestines and the end of the ileum were laid open. In the descending colon were some circular ulcers with surrounding vascularity, but, with exception of a thin red state of the mucous membrane in places, there was no other structural change. The mucous membrane of the ileum was pale, and free from disease. The left kidney was larger than natural, was somewhat lobulated, and two ureters arose from it; the external surface when divested of the capsule was speckled yellowish red. This kidney when incised presented a pale yellow, small granular appearance; the red tubuli appeared in small patches here and there, but had been much encroached on by the yellow granular degeneration. The right kidney was found in the pelvis, behind the bladder, which was distended; it lay in the hollow of the sacrum and to the right; its upper end was on a level with the base of the sacrum. The right renal artery was given off from

the inner side of the right common iliac, and as the hilus of the kidney looked downwards the artery passed over the convex margin of the kidney. This kidney was not particularly examined, but in size, lobulated character, and speckled appearance of the external surface, it resembled the kidney of the other side. The rectum was to the left of the kidney. The left renal artery was given off from the aorta close above the bifurcation. The preparation of this malformation is in the museum of the college.

CASE IX.—*Vesicular emphysema of both lungs; displacement of the heart; dilatation and hypertrophy of the ventricles; atheromatous deposit, with ulceration, in the aorta; granular degeneration of the kidneys; urine once noted,—albuminous; dropsy.*

Rawojee Canojee, a Mahratta gardener, of 50 years of age, resident for twelve years at Parell, was admitted into the hospital on the 15th October 1850, affected with dyspnœa and œdema of the lower extremities. He had been ill for two years, but no account is given of the nature of his illness. The chest, including the præcordial region, was preternaturally resonant; there was faint respiration, and sonorous and sibilous rales; the impulse of the heart was most distinct at the scrobiculus cordis, and there the sounds were distinct, and no murmurs were audible. The dropsical symptoms increased, and also the dyspnœa, and he died on the 4th November. The urine passed during the night after admission was 16 ounces, of specific gravity 1.005, and unaffected by heat and nitric acid. After the 24th it became more scanty—about 10 ounces in twenty-four hours; it was of specific gravity 1.020, and gave a turbid deposit under heat and nitric acid.

Inspection sixty hours after death.—Chest.—Both lungs were emphysematous, and rose beyond the margins of the chest; they were soft and spongy. The heart was displaced downwards and towards the right side; firm adhesions connected parts of the surface of the heart to the pericardium, and there were opaque patches on other parts of the heart's surface. The heart was enlarged from dilatation with hypertrophy of the right ventricle, and hypertrophy with dilatation of the left.

There were coagula of blood in the left auricle and right ventricle. There was slight opaque deposit towards the attached margin of the mitral valve ; the aortic valves were healthy ; the inner coat of the aorta, from its commencement, and throughout its thoracic portion, was closely studded with variously sized patches of atheromatous deposit; at the origin of the left carotid and subclavian arteries the deposit was ossific in character, and the inner coat was ulcerated to the extent of a quarter of a rupee piece.

Abdomen.—The left kidney was small ; the surface pale yellow, granular, and in places lobulated. On incising the kidney the tubular portion was observed to be distinctly encroached upon by the cortical, chiefly at its central parts. The right kidney was of the natural size, but presented the same abnormal appearances as the left.

Remark.—The dilatation of the right ventricle, and slight thickening of its walls, were probably due to the emphysema of the lungs ; the hypertrophy and dilatation of the left ventricle to the diseased condition of the inner surface of the aorta.

CASE X.—*Anasarca and ascites ; urine of low density, and albuminous ; yellow granular degeneration of the kidneys ; sunk under diarrhœa.*

Witto Rama, a Hindoo labourer, 30 years of age, an inhabitant of Nagotna, of feeble habit, and drinking spirits daily, was admitted into hospital on the 23rd April 1851. The face was puffed, the feet œdematous and the abdomen tumid ; the pulse feeble, and he was the subject of diarrhœa ; the urine ranged in quantity from 10 to 20 ounces, the specific gravity from 1.010 to 1.013, and it gave a flocculent deposit under heat and nitric acid. He sunk under diarrhœa, and died on the 3rd May.

The kidneys were lobulated, were externally mottled red and yellow, and were granular, and the tubular portion was much encroached upon. This was more remarkable of the left kidney, which was larger than natural. The right was rather smaller.

CASE XI.—*Anasarca with ascites ; cirrhosis of the liver ; the kidneys small ; the cortical portion pale and indurated ; urine tested only once, and not albuminous.*

Runchode Govind, a Hindoo barber, an opium-eater, emacia-

ted, was admitted into the hospital on the 27th September 1848. He pointed to the epigastric region as the seat of uneasiness, but there was no fulness or induration there. On the 5th October there was some yellowness of the conjunctiva. He was discharged on the 9th, but was re-admitted on the 3rd November, again complaining of uneasiness at the epigastrium. There was swelling of the abdomen, with evident fluctuation. The feet were œdematous and the face puffed; the urine, generally scanty, was tested only once, on the 13th November, when it was unaffected by heat or nitric acid. He died on the 17th January.

Inspection.—Abdomen.—There were patches of redness on the peritoneal surface of the intestines; there existed some old adhesions, chiefly of the colon, to the stomach.

The liver was contracted in size, and in a state of well marked cirrhosis.

Both kidneys were smaller than natural, and, when incised, were pale buff, uniform, and hard. This was the state of the cortical portion. The tubular was of a bright red colour.

Case XII.—*Remittent fever, with jaundice, succeeded by diarrhœa, ascites, and anasarca; the kidneys enlarged, in a state of yellow degeneration; urine had not been tested.*

Chokia, Purwaree by caste, was admitted into the hospital on the 7th November 1848, after a month's illness. He was affected with febrile symptoms, remittent in type, and complicated with jaundice. These symptoms had ceased by the 22nd November, when he became affected with diarrhœa, and gradually sunk. On the 2nd February, ascites and anasarca were noted. He died on the 7th February. The urine was never tested. The body was removed to the college dissecting-room, and in the course of dissection the kidneys were found enlarged, not lobulated, but presenting a mottled appearance when the capsule was torn off; the cortical portion was of pale yellow colour, was not granular, but presented the appearance, when incised, of a slice of parsnip; the tubular portion was distinct, and of a bright red colour.

CASE XIII.—*Admitted in an advanced state of disease; hepatization of both lungs; circumscribed pleuritic effusion of the right side; kidneys enlarged, and in a state of yellow granular degeneration; urine not tested.*

Balloo Ragoo, aged 40, a Maratha, a native of Poona, but resident in Bombay for ten years, was admitted into the Jamsetjee Jejeebhoy Hospital on the 1st October 1849, affected with diarrhœa and oppressed breathing. He had been ill a month, but was unable to give any connected account of his illness. On the 5th October, Atmaram Pandurang, at the time an intelligent Student of the Grant College, now a Sub-Assistant Surgeon, made the following note of the physical signs:—"Respiration short and hurried; the whole of the posterior and lateral part of the right side of the chest is duller than natural, and here bronchial sounds, mixed with mucous rale, are heard under the stethoscope; elsewhere on this side of the chest, and in the whole of the left side, the resonance was natural, and puerile respiration mixed with mucous rale is audible. There is equal movement of the two sides of the chest, and the dulness noticed does not vary by change of position. The vocal thrill is distinct on both sides." He died on the 7th.

Inspection fifteen hours after death.—Chest.—The inner edge of the right lung adhered firmly to the pericardium, and its anterior surface from the first to the sixth rib adhered to the costal pleura by old firm adhesions. Below the fourth rib the adhesions did not extend externally beyond the nipple, but above that rib the adhesions were general to the lateral and posterior costal parietes, as well as to the anterior. There were about thirty ounces of sero-puriform fluid in the sac of the right pleura, chiefly between the base of the lung and diaphragm, and between the costal pleura and the lung, below the level of the fourth rib.

The costal and pulmonary pleuræ were there covered with flaky lymph, forming in parts friable bands, which extended across the effused fluid. The liver was displaced by the effusion, and projected below the margins of the right ribs. The right lung was in great part in a state of red induration, in parts passing into grey infiltration. The left lung adhered firmly to the

costal pleura; the lower lobe was in a state of red induration; the upper crepitating, but œdematous.

The kidneys were both enlarged and flabby, appearing mottled externally on the removal of the capsule, and on incision the surface presented considerable encroachment, on the tubular portion, by pale yellow, slightly granular substance.

CASE XIV.—*Remittent fever; dysenteric symptoms two days before death; the mucous coat of the rectum and sigmoid flexure of bright red colour; the kidneys studded with cysts, and in a state of granular degeneration; urine not examined.*

Joam de Rozario, a Portuguese cook, of 28 years of age, was admitted into the hospital on the 22nd August 1850. He stated that for eight or ten days he had been suffering from daily accessions of fever; he complained of pain of the anterior part of the chest, and had slight cough, without expectorations. On the 23rd no fever, but headache and giddiness complained of. On the 26th and 27th the bowels were relaxed; the evacuations passed with straining, and containing traces of blood and mucus; no distinct pain of abdomen, but general soreness. He became unexpectedly comatose, and died on the morning of the 28th.

The above short narrative of this case is abridged from notes made by Mr. J. C. Lisboa, at the time a very promising Student of the Grant College, now a Sub-Assistant Surgeon. The following account of the appearances found after death is copied from Mr. Lisboa's report:—

Inspection two hours after death.—Abdomen.—Mucous membrane of the rectum and sigmoid flexure presented a bright red colour, containing a small quantity of thin fluid, also of bright red colour. Mucous membrane of the rest of the intestines, both large and small, was healthy. Nowhere was any softening or ulceration detected, nor any enlargement of the follicles.

The stomach was much contracted, and its mucous membrane very rugous, but the structure was healthy.

Liver.—There were several old adhesions between the convex surface of the right lobe and the corresponding part of the diaphragm; the size, consistence, and structure natural, but its upper and lower surface was rendered very irregular by numerous de-

pressions and fissures, which, however, did not penetrate quite through its substance.

Kidneys.—The right kidney almost of the natural size. The capsule was easily removed, and the external surface presented a granular mottled red and white, and very irregular appearance, with elevations varying from the size of a pin's head to a split pea, and larger; they were generally of whitish colour, or mottled. Here and there, there were also seen many small cysts, varying also in size from a pin's head to a split pea. The incised surface also had a finely granular appearance; the cortical substance was pale, much increased in size, and encroached a good deal upon the medullary portion, which in places was not seen, and at others presented a curved aspect, apparently caused by compression of the cortical substance. The left kidney, smaller than the right, presented externally much the same appearance as the right, but it was not so irregular. The cysts were more numerous, and larger; and one, the largest, about the size of the areca nut. This cyst contained a small quantity of serous fluid; its wall seemed to consist of condensed areolar tissue, and some firm fibrous bands were seen crossing its cavity. It was situated at the convex edge of the kidney. When incised, scarcely any part of the medullary substance was seen. The cortical substance presented a pale granular appearance, as in the right kidney.

Chest.—Some old adhesions connected the upper left lobe to the costal pleura. The lungs spongy.

Heart.—The left ventricle contracted; mitral valves healthy; slight thickening and induration of the attached margins of the aortic semilunar valves; the inner surface of the aorta presented, here and there, very small white prominent points, apparently from some deposit on the under surface of the lining membrane; the right cavities and valves healthy.

CASE XV.—*An habitual opium-eater; anasarca, ascites; urine of low density, and albuminous; dyspepsia, diarrhœa, and bronchitis; death, but no inspection permitted.*

Mahomed Cassim, a Musulman coachman, of 30 years of age, resident in Bombay for fifteen years, not in the habit of

using spirituous liquors, but an opium-eater to the extent of 30 grains daily, for ten years, was received into the clinical ward of the Jamsetjee Jejeebhoy Hospital on the 5th October 1848. Three years before he had suffered from remittent fever, and two months before from œdema of the legs and feet, which disappeared under the use of remedies received as an out-patient, but had returned twenty days before his admission into the hospital as an in-patient.

State on Admission.—He was not reduced ; the feet and legs were œdematous ; the abdomen tumid and fluctuating ; the sounds of the heart natural ; he had slight uneasiness of the loins ; no febrile symptoms, and little complaint of dyspepsia. He attributed the dropsical state to his having got wet. He remained under treatment till the 3rd December, during which time the *urine*, generally pale and clear, ranged in quantity in the twenty-four hours from 15 to 50 oz., in specific gravity from 1.016 to 1.025, and always gave a copious deposit under heat and nitric acid.

Treatment.—He was cupped on the loins; purgatives, the warm bath, and diaphoretics were used ; latterly saline diuretics, with tincture of degitalis; and under the use of these the urine increased in quantity, and when he left the hospital the dropsical symptoms were altogether removed.

2nd Admission.—He was again received into the ward on the 1st of January 1849. He had returned to his occupation of coachman, but had been able to continue it only fifteen days, when, consequent on exposure to cold, the œdema of the feet and legs, and the ascites returned, and were present on admission. The urine was seldom below 36 oz., and sometimes upwards of 60 oz. in the twenty-four hours, the specific gravity about 1.016, and it was always albuminous. He now suffered more from dyspeptic symptoms ; had occasional diarrhœa; cough was at times complained of, and dry bronchitic rales were present, and he suffered from erythema of the scrotum. He remained in hospital till the 26th of February, when he left it; the dropsical symptoms in no respect improved by very much the same kind of treatment that had been efficacious on his first admission.

3rd Admission.—After leaving the hospital in February, he went to Poona, but deriving no advantage from this change, he returned to Bombay, and for two months submitted himself to various treatment by native hakeems, of which the exhibition of mercury formed part. He was a third time admitted into the ward on the 29th of May. He was now much reduced in flesh; the dropsical state continued; the pulse was small and feeble; the tongue florid and glazed; there was no diarrhœa; the urine continued albuminous, and of specific gravity 1.016. He was removed by his friends in a moribund state on the 9th of June, and no examination of the body was permitted.

CASE XVI.—*A Bengal sailor; anasarca and ascites; asthma; urine of low density, and albuminous; tendency to coma. Removed by his friends in a moribund state.*

Alla Buckus, a Musulman sailor, of 40 years of age, an inhabitant of Bengal, and leading a sea life for twenty years, in the enjoyment (as he stated) of good health, till about three months before his admission into the hospital, on the 8th November 1848, when, while at Ceylon, slight dropsical symptoms made their appearance.

State on Admission.—The face was puffed; the abdomen full; the feet and hands slightly œdematous; the respiration was natural, as also the sounds of the heart; the pulse was sixty, and feeble; the tongue slightly coated; the bowels regular. He complained of thirst, and of frequent vomiting and dyspeptic symptoms, and occasional pain of the loins and limbs. He remained under treatment till the 16th November, when he was removed by his friends in a moribund state.

Whilst under observation, the urine was pale and clear, generally below 20 ounces in the quantity, specific gravity 1.012, and giving a copious deposit under heat and nitric acid. On the 11th there was febrile heat of skin, which continued more or less; there was also drowsiness, and increase of the dropsical symptoms and oppression of breathing. These symptoms lessened somewhat under the free action of the bowels, from gamboge and bitartrate of potass; but the pulse lost strength, and when he was removed there was much oppression of the breathing and subsultus tendium.

CASE XVII.—*Ill with dysenteric symptoms; urine of low density, and albuminous; became affected with cholera; died. No inspection permitted after death.*

Billal, a Mussulman, of African extraction, born at Hydrabad, in Scinde, following there the occupation of a cultivator, and since he left it that of a sailor. He was 32 years of age, addicted to the use of spirituous liquors, and had been resident in Bombay about a month before he came under observation. He was admitted into the clinical ward on the 13th September 1849. He was a good deal reduced, and had been affected with bowel complaint for about seven days. The lungs and heart seemed healthy; he was the subject of dysenteric symptoms. The urine was tested on the 16th, 17th, and 18th; was in quantity about 20 ounces, of specific gravity 1.006 and 1.007, and very albuminous; on the afternoon of the 18th symptoms of cholera with collapse came on, and he died on the morning of the 19th.

There was no examination of the body after death, in consequence of the objection of his friends.

CASE XVIII.—*Asthenia; anasarca, ascites; urine of low density, and albuminous; dyspnœa, and drowsiness; and removed from the hospital; a spirit-drinker.*

Cowasjee, a Parsee servant, of 30 years of age, an inhabitant of Surat, but resident in Bombay for about a year, without employment, and in indigent circumstances. He had been addicted to the excessive use of spirituous liquors. He was admitted into the hospital on the 3rd September 1850, affected with a pustular eruption on the legs, and irregular febrile symptoms. While under treatment, the feet and legs became œdematous, and the abdomen obscurely fluctuating, and on the 11th September the urine was examined: 40 ounces had been passed in 24 hours; it was slightly alkaline, of specific gravity 1.010, and gave a copious deposit under heat and nitric acid. The sounds and impulse of the heart were natural; the pulse was feeble; he complained of some difficulty in swallowing. On the 18th there was dyspnœa, a failing pulse, and increasing dropsical symptoms; the urine continued albuminous, of low density, and become scanty. On the 19th there was crepitous rale audible in the right dorsal

region; the dyspnœa increased; he became drowsy, and was removed by his friends in a moribund state on the 20th September. He was treated chiefly with stimulants.

CASE XIX.—*Disease of the heart; urine of low density, and albuminous; dropsical symptoms. Result not known.*

Hurmuzjee Jamsetjee, a Parsee cook, of 28 years of age, who had been in the habit, for a series of years, of drinking from six to seven ounces of spirits daily, and who stated that he had generally been in good health, till eleven days before his admission into hospital on the 2nd September 1850.

On admission the respiration was short, and chiefly abdominal; there was occasional short cough, and he pointed to the left mammary region, and to the margin of the left false ribs, as the seat of pain; the pulse was 108, and small, and there was slight heat of skin. On examining the chest, there was observed increased præcordial dulness on percussion, and friction sound was heard over a spot an inch below, and internal to the nipple. The sounds of the heart were obscured at the site of the friction sound, but elsewhere in the præcordial region they were distinct; the impulse of the heart was increased. Vesicular respiration was general and unmixed. There was no pain or swelling of the joints, nor did he seem ever to have suffered from rheumatism or dropsical symptoms. A blister was applied to the præcordial region, and two grain doses of calomel were directed every third hour. On the morning of the 4th, the urine was found to be of specific gravity 1.007, and to give a copious flaky deposit under heat and nitric acid. The gums had become slightly affected; the mercury was omitted. He continued under treatment till the 15th September, when, at his urgent request, he was discharged. The urine had ranged in quantity from 20 to 40 ounces, was generally of pale amber colour, of specific gravity from 1.006 to 1.015, and always markedly albuminous; the præcordial dulness was less; the friction sound disappeared on the 6th, but was again present on the 11th, and continued at the date of discharge from the hospital, but the dyspnœa was gone, and he thought himself well.

He was re-admitted on the 4th October: he had continued

easy for about twelve days after he left the hospital, when the dyspnœa and short cough returned. On admission there was increased præcordial dulness, as before, and a rough murmur was heard at a spot an inch in diameter, an inch and a half below and internal to the left nipple, obscuring at that situation the sounds of the heart; but these sounds became distinct as the stethoscope was moved upwards. The urine continued of low density, and distinctly albuminous; the legs and feet became œdematous, and the abdomen full; the dyspnœa increased; there was crepitus heard in different parts of the chest; and, latterly, there was distinct epigastric dulness on percussion. He was removed from the hospital by his friends on the 28th October.

Remarks.—In this, as in the instance of the Parsee inmates of the hospital generally, there was removal so soon as symptoms of an approaching fatal issue appeared. This, and the objection to post-mortem examinations, oppose an obstable to the study of disease in this class of the community.

The cardiac murmur, at first thought to be exocardial, from its obscuring both sounds of the heart, was in all probability dependent on mitral disease. I have certainly in one case observed both sounds obscured at the apex of the heart by a mitral murmur, as I shall explain more fully in an early communication to the Society, on the cases of heart-disease treated in the clinical ward of the hospital.

Case XX.—*Anasarca and ascites; urine of low density, and albuminous. Left the hospital cured of the dropsical symptoms, and continued well for some time.*

Gool Mahomed, aged 28, a Musulman of stout frame, an inhabitant of Cabool, came to Bombay with the view of proceeding to Mecca on a pilgrimage. He had been in the habit of smoking bang and tobacco, but not of using stimulants or narcotics of any kind. During his stay in Bombay, he had followed the occupation of a cook, and he had been under treatment, sometimes as an in-patient and sometimes as an out-patient, of the hospital, during seven months preceding his admission into the clinical ward, which took place on the 8th of December 1848.

State on Admission.—There was general anasarca; the abdomen was full and fluctuating, but without distinct induration anywhere; the sounds and impulse of the heart were natural; and, with exception of here and there dry bronchitic rales, there were no signs of pulmonary disease; the tongue was clean; the pulse natural; he complained of pain of the loins and back, on both sides of the spine; he attributed the dropsical symptoms to exposure to cold. He remained under treatment from the 8th of December to the 14th of April. The urine in quantity was generally upwards of 60 ounces, often as much as 100 oz.; it was clear and pale, of specific gravity from 1.007 to 1.013, and gave a copious flaky deposit under heat and nitric acid.

He was first treated with purgatives, the bitartrate of potass, and gamboge, with the warm bath occasionally, and a diaphoretic at bed-time. Under this the dropsical state lessened. Then he was treated with diuretics, acetate of potass, tincture of digitalis, and spiritus ætheris nitrici. The dropsical state still farther lessened, and on his discharge from the hospital was altogether gone. He was, however, re-admitted into the hospital on the 27th April, affected with bronchitis, febrile symptoms, and general soreness of the body, but no return of the dropsical symptoms.

The urine continued free, of low density, and albuminous. He was discharged cured of the bronchitic and febrile symptoms on the 10th of July 1849, but without any improvement in the character of the urine.

This individual continued to follow the occupation of cook in an eating-house in Bombay, and was last seen, apparently in good health, and without dropsical symptoms, on the 1st March 1850. The only complaint that he made was of occasional uneasiness of the loins. The urine was still of low density, and distinctly albuminous under heat and nitric acid.

Since this was written, I have again seen this patient on the 26th July 1851. He still follows the occupation of a cook. He is somewhat reduced in flesh, probably from the irritation of a guinea-worm, from which he is at present suffering. He has had no return of dropsical symptoms. The urine was about 40 ounces

in the twenty-four hours; that seen was quite clear and amber-coloured, and gave a flocculent deposit under heat and nitric acid; it was of specific gravity 1.007.

Remark.—Two years have elapsed since this patient was discharged from the hospital cured of the secondary affections, and from these, especially the dropsical state, he has remained exempt ever since, following his occupation of cook in an eating-house, yet the urine continues albuminous, and of low density.

CASE XXI.—*Febrile symptoms, followed by anasarca; urine of low density, and generally, but not always albuminous; anæmic cardiac murmur. Left the hospital much improved, and continued so for some time.*

Martinho de Silva, 20 years of age, an inhabitant of Goa, a cook by occupation, had lately come to Bombay in search of employment. A month before his admission into the hospital, on the 14th October 1848, he had been affected with intermittent fever.

State on Admission.—The face was puffed; the feet œdematous, and this had been the case for thirteen days previously to his admission. The abdomen was full and doughy, but not fluctuating, and there was dulness on percussion for three inches below the right ribs, but none below the left; the tongue white and slightly furred; the pulse 80; the urine scanty; the bowels confined; there was an eruption of scabies on the hands.

He remained under treatment till the 3rd of June 1849. During the first month the urine was generally amber-coloured, and clear, and ranged in quantity from 12 to 20 ounces in the twenty-four hours; in specific gravity from 1.009 to 1.013, and gave a flaky deposit under heat and nitric acid. Subsequently the urine increased in quantity, ranging from 40 to 100 oz., the specific gravity sometimes as low as 1.004, never higher than 1.013; the traces of albumen continued till the middle of December, after which they were absent. During the first fortnight he chiefly complained of dyspeptic symptoms, then in the first fortnight of November of irregular febrile accessions, succeeded by symptoms of mild bronchitis. On the 26th November increased præcordial dulness was noted, and there was a systolic cardiac

murmur most audible at the base of the heart; but both had disappeared at the period of his discharge.

The dropsical symptoms continued till towards the latter end of November, when, under the increasing flow of urine, they lessened, and finally disappeared.

He was treated with diureties, laxatives, diaphoretics; but it was under the use of the ferri potassio-tartras that the urine increased in quantity, and that the dropsical symptoms and the cardiac murmur ceased. This patient was again seen on the 1st of March 1850, fifteen months after his discharge from the hospital: then he seemed in good health; the sounds of the heart were natural, no murmur was audible, but the urine gave a flaky deposit under heat and nitric acid.

CASE XXII.—*Anasarca and ascites; urine of low density, albuminous. No improvement from treatment; left the hospital.*

Dost Mahomed, aged 40, a Mahomedan Faqueer, an inhabitant of Khorassan, and always in indigent circumstances. His journey from his native country to Bombay occupied about two years, and he was received into the hospital on the 9th January 1849, four days after his arrival in Bombay.

He was somewhat reduced. The legs, feet, and hands were œdematous, and the abdomen was swollen and fluctuating, and these dropsical symptoms had been slowly forming for eight months; the respiration was natural; the action and the sounds of the heart were natural; the pulse of good strength; the tongue clean; the bowels regular; he had no pain of loins, but complained chiefly of symptoms of indigestion and thirst.

During his stay in hospital, the urine, pale and clear, was sometimes acid, at others alkaline, and ranged in quantity from 30 to 70 ounces, in density from 1.009 to 1.014, and always gave a copious flaky deposit under heat and nitric acid.

He was treated at one time with purgatives, as bitartrate of potass and gamboge, and elaterium; then with diuretics. He became discontented, and left the hospital on the 8th February, with the dropsical symptoms very little lessened.

CASE XXIII.—*Anasarca and ascites; urine scanty, and very albuminous; asthenia; addicted to the occasional use of spirits.*

Gowar Alee, aged 28, a Musulman cook, an inhabitant of Aurungabad, but resident in Bombay for about six years, addicted to the occasional, not excessive use of spirituous liquors, but not to that of opium or any other narcotic. Has been well fed, and not exposed to the inclemencies of weather. For about three months before admission into the hospital, on the 19th January 1849, he had been the subject of dyspeptic symptoms, and for twenty days of dropsical symptoms: the former he attributed to his having observed religious fasting for a month continuously.

State on Admission.—He was a good deal reduced; the face, legs, and feet were œdematous; the abdomen was full, with obscure fluctuation, but no induration; respiration, and the sounds and action of the heart, were natural; the tongue was clean; the pulse feeble; and he made no complaint of pain of loins.

During his stay in hospital, the urine ranged in quantity from 8 to 14 oz. in twenty-four hours, in specific gravity from 1.021 to 1.025; it was amber-coloured, and clear, and very albuminous; the flocculent deposit occupying about three-fourths of the tube.

He was treated with diaphoretics, also tonics, quinine and iron in combination, with diuretics, but without any benefit, and he left the hospital on the 12th of February, very much in the same state as on admission. Of his subsequent history nothing is known.

CASE XXIV.—*Anasarca; urine albuminous; the subject of diarrhœa and bronchitis. Left the hospital improved in health.*

Goolam Mahomed, a Musulman, 23 years of age, a cotton-weaver, an inhabitant of Mooltan, but for a year and a half generally resident in Bombay. He was 23 years of age, and somewhat emaciated. About five months before he came under observation he had been affected with chancres and bubo, and the latter had suppurated. He was not brought under the influence of mercury. Subsequently the abdomen became tumid, and the

feet and legs œdematous, and this state was in a measure removed by the use of remedies taken at Goa, where he was at the time residing. He admitted that he was in the habit of occasionally smoking opium, but denied that he made use of spirituous liquors. He was admitted into the clinical ward on the 3rd August 1849, with slight œdema of the feet and legs; puffiness of the face, and fulness of the abdomen; feeble pulse; anorexia; bowels regular; tongue slightly coated; no indication of cardiac, or pulmonary disease, with exception of a slight occasional crepitus in the left dorsal region; the spleen was enlarged, as indicated by percussion of the left dorsal region, but it did not project below the ribs.

On the 31st the urine was found of sherry colour, neutral, specific gravity 1.018, and gave a copious flocculent deposit under heat and nitric acid. From the 6th September to 20th October, there was more or less diarrhœa present, at times almost dysenteric in character, at others the discharges were very frequent, copious, and watery, almost choleraic (and cholera at the time prevailed). During this period, the urine was generally below 20 ounces in quantity, of specific gravity from 1.016 to 1.020, and was always very albuminous. He suffered from cough at times, and there were bronchitic rales audible in different parts of the chest. From the 20th October to the 15th November, the date of his discharge from the hospital, the urine increased in quantity, ranging from 50 to 60 ounces, being of specific gravity from 1.007 to 1.014, and still albuminous. The œdema of the legs and feet, and the fulness of the abdomen disappeared, and he left the hospital at his own request, to proceed to Cutch.

The treatment was at one period chiefly directed towards checking the diarrhœa, and latterly small doses of Dover's Powder, with nitric acid and a bitter infusion, were used.

CASE XXV.—*Anasarca; urine of low density, occasionally albuminous; had been affected with fever; was the subject of anæmic systolic murmur. Recovered his health.*

John Edwards, an Indo-Briton, of 21 years of age, an inhabitant of Pondicherry, but for many years employed in the artillery band at Poona, to play on one of the wind instruments. About

six months before he came under observation, he had been discharged from his situation, and was out of employment. For about two months and a half he had been suffering from febrile symptoms, latterly accompanied with œdema of feet.

He was admitted into the clinical ward on the 1st November 1849, affected with œdema of the feet, legs, and arms; puffiness of the face, and fulness of the abdomen, with distinct fluctuation; there was enlargement of the spleen; the pulse was irritable, and there was a systolic murmur most audible at the cartilage of the fourth rib, attended with increased impulse of the heart, but no increased dulness on percussion of the præcordial region. There was also increased heat of skin present, with bronchitic rales in the dorsal regions. He stated that he was in the habit of taking about an ounce of spirits daily. On the 3rd, 4th, and 5th, there was recurrence of febrile accessions, commencing with chilliness. The urine was examined on the 3rd, 4th, 5th, and 6th. It was of specific gravity from 1.006 to 1.008; in quantity upwards of 50 ounces in the night, and gave a deposit under heat and nitric acid, with exception of the 3rd, when there was turbidity from heat, but not from nitric acid. Under the use of quinine, the recurrence of fever was prevented. He left the hospital on the 19th, the dropsical symptoms, with exception of slight fulness of the abdomen, having been removed; the enlargement of the spleen was lessened; the pulse had lost its irritability, and the systolic murmur had been absent for about nine days. The urine, from the 6th to the 19th, was generally upwards of 5 pints in the twenty-four hours; it was examined on the 10th, 11th, 12th, 15th, 17th, and 19th; its specific gravity ranged from 1.004 to 1.007; on the 15th it became slightly turbid under heat and nitric acid, but on the other six days was unaffected by them.

He complained occasionally of uneasiness of the loins, for which dry cupping was had recourse to, with relief.

The treatment consisted of quinine and sulphate of iron, also the use of the spleen mixture.

Remarks.—From the albuminous state of the urine not being persistent, it may be questioned whether the case was really one of Bright's disease, and not rather one of those instances of transient albuminuria related to febrile disturbance of the system.

CASE XXVI.—*Anasarca, consequent on fever; urine of low density, not always becoming turbid under heat and nitric acid. Left the hospital improved in health.*

Shewlaul, a Brahmin, of 22 years of age, an inhabitant of Jeypoor, a hakeem by occupation, had arrived in Bombay only ten days before he was admitted into hospital, having travelled from Jeypoor on foot, exposed during the journey to cold and wet; in consequence of which he had suffered from occasional febrile symptoms, commencing with chills, at irregular times. When questioned in regard to his habits, he denied that he was in the habit of using spirituous liquors, or narcotic drugs of any kind. He was admitted into the clinical ward on the 16th October 1849: the feet were œdematous; the face somewhat puffed, and the abdomen full, without any sense of fluctuation; the pulse was of moderate strength; there was slight increased heat of skin; the tongue was somewhat coated in the centre, and florid at the tip, and the bowels were reported to be regular; there were no signs of cardiac or pulmonary disease, or enlargement of any of the abdominal viscera; no pain of the loins.

On the 17th, the 14 ounces of urine which he had passed during the preceding night was of amber colour, clear, neutral, of specific gravity 1.011, becoming turbid under nitric acid, and giving a flaky deposit with heat. Up to the 22nd of October he had daily irregular febrile accessions, which generally came on with chills, and there was present a slight degree of bronchitis. The urine passed during the night was from 14 to 20 ounces in quantity; it was examined on the 19th and on the 20th, was clear and amber-coloured, of specific gravity 1.010 and 1.013, and became turbid under nitric acid, and gave a flaky deposit under heat.

Under the use of quinine the febrile symptoms were removed. He continued under treatment till the 25th October, when he was discharged at his urgent request. The urine from the 22nd to the 25th passed during the night ranged in quantity from 20 to 50 ounces. It was examined on the 22nd, 23rd, and 25th; was on each occasion clear, and of pale amber colour, of specific gravity 1.008, 1.006, and 1.007, and unaffected by heat or nitric

acid. When he left the hospital, the pulse was improved in strength ; the œdema had almost altogether disappeared.

Remark.—In this case, as in the last, the albuminuria was transient, and was present in association with febrile disturbance, and disappeared on the removal of the febrile symptoms.

CASE XXVII.—*Addicted to the use of spirits; had been the subject of secondary syphilis and mercurial influence; asthma, anasarca, ascites; urine of low density, and albuminous; a mitral systolic murmur heard; affected with dysenteric symptoms. Left the hospital.*

Luxamun Subajee, a Hindoo, of 40 years of age, 20 years resident in Bombay, and following the occupation of buggy-driver, addicted to the habitual use of spirits and of ganja. He had been the subject of several attacks of syphilis, and been brought under the influences of mercury three or four different times. Rheumatic pain of the joints had followed one syphilitic affection ; and hoarseness of the voice, present on his admission into hospital, had succeeded another. About a month before he came under observation, he had been the subject of dysenteric symptoms. He was admitted into the clinical ward on the 22nd January 1850 : his appearance unhealthy ; the countenance sallow ; there was anasarcous swelling of the body generally, but chiefly of the legs, and the abdomen was swollen, with indistinct sense of fluctuation. These dropsical symptoms had been present ten days. There was no dulness on percussion of the chest, but occasional sibilus mixed with the respiratory murmur. A systolic murmur was heard most distinctly in the direction of the apex of the heart. The skin was cool and dry, the pulse 104, and small ; the appetite not impaired ; the urine was said to be scanty, and there was pain and sense of weight in the lumbar region. On the 26th the urine was examined : 28 ounces had been passed during the night ; it was clear, pale, neutral, of specific gravity 1.008, and very albuminous. There was also crepitous rale audible in the right dorsal region. He continued under treatment till the 17th of February, when he left, with the intention of returning to his native country. During the time that he was under observation the cardiac murmur continued

unchanged. There was occasional crepitus heard in different parts of the chest; the dropsical symptoms persisted; dysenteric symptoms were frequently complained of. The urine was sometimes copious, at others rather scanty; it was frequently examined; was always very albuminous, and the specific gravity ranged from 1.005 to 1.012. The treatment varied according as the pulmonic, the dysenteric, or the dropsical symptoms were most urgent. When he left the hospital the disease had made progress; he was more asthemic than on admission.

CASE XXVIII.—*Addicted to the use of spirituous liquors; the frequent subject of syphilitic affections; no dropsical symptoms; urine of low density, and albuminous. Left the hospital.*

Hormuzjee Manickjee, a Parsee, of 36 years of age, a buggy-driver by occupation, emaciated, and addicted to the use of spirituous liquors, having for a series of years been in the habit of drinking daily upwards of half a bottle of brandy. He had been under treatment several times for syphilis, both primary and secondary, and a considerable part of the soft palate had been destroyed by ulceration. He was admitted into the hospital on the 6th September 1850, the subject of guinea-worm of the right foot and leg, attended with extensive suppuration. Whilst under treatment for this affection he suffered much from diarrhœa, and complained of tenderness at the epigastrium. On the 28th of September the urine was first examined: it was about 40 ounces in twenty-four hours, pale, neutral, of specific gravity 1.010, and gave a flaky precipitate under heat and nitric acid. It was tested several different times with the same results. Percussion and auscultation failed to detect any disease of the heart or lungs. He never suffered at any time from pain of loins. The foot and leg which had been affected with the guinea-worm being nearly well, he left the hospital at his own request on the 1st October 1850.

CASE XXIX.—*Hæmaturia a year before admission; anasarca, ascites; urine of low density, and very albuminous; bronchitis. Deserted from the hospital.*

Shaik Nusseroodeen, a Musulman, of about 30 years of age,

stated himself to be an inhabitant of Bengal, a cultivator by occupation, but that he had left his native place ten years before he came under observation. He had come to Bombay with the intention of proceeding on a pilgrimage to Mecca, but consequent on the death of his brother and his wife he abandoned the design, and became resident in Bombay, following the occupation of sailor, and making occasional voyages to Cutch, Ceylon, and China. He had been generally in poor circumstances, and had indulged in the use of spirituous liquors, opium, and tobacco. He was admitted into the hospital on the 27th September 1850: about a year previously he had been occasionally affected with hæmaturia and uneasiness of the loins, and about three months before admission he first observed his feet to be œdematous; the swelling had progressively increased and extended to the abdomen, which on admission was tense, swollen, and fluctuating; the face was puffed, and the lower extremities œdematous, the breathing was short and hurried; the sounds and impulse of the heart were natural; there was no dulness on percussion of the chest, but bronchitic rales, both dry and moist, were pretty general; the pulse was feeble; the skin dry, and he said that it was generally so. The urine was tested on the 29th—7 ounces had been passed during the night: it was smoke-coloured, of specific gravity 1.015, and gave a copious white flaky deposit under heat and nitric acid.

He continued under treatment till the 18th October. The urine was generally under 20 ounces in the twenty-four hours, of reddish colour, of specific gravity about 1.015, and always very albuminous. The dropsical symptoms increased, and, discontented at the want of success which attended the treatment, he deserted from the hospital on the 18th October. Diuretics, with dry cupping on the lumbar region, diaphoretics, and purgatives, were in succession tried.

Remark.—In this case we have distinctly the symptoms of kidney irritation, as evinced by lumbar pains and hæmaturia occurring a year before his admission into the hospital.

CASE XXX.—*Addicted to the use of spirits; formerly the subject of syphilis and mercurial influence; anasarca, ascites; urine albuminous. Left the hospital improved in health.*

Antone De Souza, a Portuguese cook, of 40 years of age, sometimes making voyages to sea, and exposed to the inclemencies of weather, and habitually addicted from his boyhood to the use of spirituous liquors. Had been affected with syphilis when 20 years of age, and was brought under the influence of mercury for its cure. For about three years before he came under observation he suffered from time to time from lumbar pains, and noticed his urine to be scanty. About two months before admission into hospital he was affected with febrile symptoms, which were followed by swelling of the feet and legs. He was admitted into the clinical ward on the 28th March 1850: there was general anasarca; the abdomen was swollen, and fluctuation was distinct; the pulse small and easily compressed; no signs of cardiac disease, nor of pulmonary disease, with exception of sibilous and subcripitous rale here and there. The urine was very scanty, of brownish colour, of specific gravity 1.017, and very albuminous. Under the use of diuretics it increased in quantity, but never exceeded 30 ounces in the twenty-four hours; the brownish colour continued, it was neutral, and always very albuminous; the specific gravity not below 1.014. He remained under treatment, using various diuretics without any benefit; he became dissatisfied, and left the hospital on the 20th April.

CASE XXXI.—*The subject of intermittent fever, followed by bronchitis, and slight anasarca; urine of low density, and very albuminous.*

Moria Pheena, a Hindoo labourer, of 50 years of age, an inhabitant of Benares, but for four or five years employed as a labourer at Aden, which place he left about eight months before his admission into hospital: he had been addicted to the use of opium—10 grains daily for about eight years; he smoked ganja occasionally, but did not take spirituous liquors. He was admitted into the clinical ward on the 20th June 1851: he stated that he had been the subject of intermittent fever about four months before, succeeded by cough, with copious expectoration,

some œdema of the arms and feet, and subsequently with swelling of the abdomen. On admission he was a good deal reduced; the abdomen was somewhat full, and obscurely fluctuating, and there was slight œdema of the legs, scrotum, and forearms, with slight puffiness of the face; the lungs and heart shewed no signs of disease on percussion and auscultation; there was no induration detected in the abdomen; the pulse was small and feeble; tongue moist; the bowels rather confined; no pain of loins. He continued under treatment up to the present date (August 7th), with no change in his state: the urine has ranged in quantity from 30 to 70 ounces in the twenty-four hours, in specific gravity from 1.005 to 1.015. Has been generally clear, of pale lemon colour, neutral, and giving a copious flocculent deposit with heat and nitric acid. The urine being free, and the dropsical symptoms slight, it was thought advisable to try whether any impression could be made on the degeneration of the kidney by the use of cod liver oil: he took it to the extent of an ounce, and latterly an ounce and a half, daily, and at the same time quinine was used twice daily in three grain doses; but there being no improvement in the urine, or in his general state, these remedies were omitted, and the syrup of the iodide of iron was substituted. This has not been followed by any amendment, and Dover's Powder and the occasional use of the warm bath has been had recourse to, with lessening of the œdema of the feet.

Conclusion.—It will be of interest to endeavour to follow, as far as may be practicable, the history of those patients, who may have left the hospital more or less relieved from the consequences of this disease. I hope to be able to do this in regard to some of the cases here narrated; and to have the opportunity, at some future time, of stating to the Society the results, with additional facts relative to this interesting and important affection, as presenting itself in the natives of India.

APPENDIX.

APPENDIX.

No. 1.

Case of severe Gunshot Wound of the Left Arm and Shoulder, followed by successful Ligature of the Left Subclavian Artery. By Assistant Surgeon CRAWFORD, Indian Navy.

Presented by the Medical Board.

Whilst lately serving in the Persian Gulf, in Medical charge of the Hon'ble Co.'s Steam Frigate "Auckland," I was hurriedly dispatched to the Naval Station of Bassadore, to afford Surgical aid to a young Officer, who was suffering from the effects of a formidable gunshot wound. I did not reach my destination until the fifth day after the accident, when I received the following report:—

On the previous Wednesday (29th January), Mr. Fendall had been out fowling, and while in the act of pulling his gun towards him by the muzzle, the left barrel accidentally exploded, and the shot took effect upon the upper part of the left arm and shoulder. They did not consider that the humerus was fractured, or that the contents of the barrel (No. 6 shot) had lodged in the wound, but had passed out, carrying a considerable portion of the soft parts with them. There had been excessive hæmorrhage, which was arrested by pressure and bandaging, applied by the Hospital Assistant of the Ship and the Assistant of the Naval Hospital of Bassadore; and they conceived that the loss of blood must have amounted to 4 lbs. They stated that they had applied a ligature to what they believed to be the brachial artery high up, but that it had come away that morning. Upon examination of the case I found a large, open, contused and lacerated wound, occupying the front and inner side of the left arm, commencing about two and a half inches below the acromion process of scapula, extending about four inches in length and three in width. The violence had torn away a considerable portion of the front edge and body of the deltoid, the long head and a large portion of the belly of the biceps, the outer edge of the coraco-brachialis, and had cut across the cephalic vein, the external cutaneous nerve, and the superior profunda artery. From the state of feeling in the parts supplied by the musculo-spiral and median nerves, I concluded that they were safe, although from the irritation of parts about their origin their functions were in some degree interfered with. The impulse had fractured the humerus a little above the

junction of its superior and middle third, driving and impacting the end of the lower fragment upwards and backwards, and thus causing the upper fragment to ride upon and overlap it by about two inches: I could also pass my finger along the bicipital groove of the humerus almost into the shoulder joint, but I had still a hope that its cavity was not opened; and from the separation of the body of the deltoid from the capsular ligament, both anteriorly and posteriorly, the burrowing extent of the wound, and the distance to which I could pass up a bullet-probe in front and behind the shoulder joint, I could have little doubt that a great portion, if not the whole charge of shot, was lodged not only around, but *above* the joint. It appeared as if the centre of the volume of the charge had struck fair upon the shaft of the humerus, and its mass, being divided by that hard and resisting body, as well as its direction changed, one portion glanced up along the front of the joint, and lodged as high up as the lower edge of the clavicle, and the other, passing posteriorly, settled in the soft parts of the infra-spinal fossa of the scapula; and, from a particular tenderness upon touch, accompanied with much swelling in the supra-clavicular region of the neck, I entertained a dread that some few pellets might even have forced a passage into that space. The arm was advanced from the body whilst in the act of drawing the piece backwards, and as the latter was laying upon an elevated rock, and thus raised almost to a level with the shoulder, the axis of the humerus must have formed but a small angle from the horizontal. The muzzle of the piece, also, could not have been more than fourteen to sixteen inches distant from the shoulder at the moment of explosion, so that the circle formed by the shot when it first struck the arm must have been of small diameter. The edges of the wound were ragged and irregular, and rather inverted inwards than outwards; the surrounding soft parts hot and much swollen; a dark fœtid and unhealthy discharge had begun to flow; but the lower part of the arm and forearm were of their natural color and temperature, soft also, and devoid of any characteristic of gangrene, and, with the exception of that portion of the integuments supplied by the external cutaneous nerve, the sensitive power of which was quite destroyed, the general functions of the muscles and skin below the seat of the wound were passably preserved. At the bottom and inner side of the wound, corresponding exactly to the termination of the axillary or beginning of the brachial artery, I could visibly observe the regular pulsation of a large vessel but very slightly covered with soft parts; and as this pulsation was synchronous with the radial pulse of the same side, and the latter of equal strength and volume with that of the right arm, I could have little doubt as to the safety of the main artery of the limb. From the swollen state of the soft parts, however, and from my having no resisting body, in consequence of the fracture, upon which to exercise pressure, I could not satisfactorily test the effect upon the radial pulse of compression of the artery near or above the seat of the wound; but below the wound I could distinguish the pulsation of the brachial as it approaches the elbow joint. There was much general exhaustion; sensation of chilliness all over the surface, and anxiety of countenance; the pulse bounding, 120 in the minute, soft and compressible; skin hot, and rather dry; much thirst; tongue covered with a white fur; bowels rather torpid. The patient is 22 years of age, of the nervo-lymphatic temperament; has a slight tinge of scrofula in his habit, and is much annoyed with tape worm. He has lately been troubled with small simple ulcers of the legs, for which, together with a slight attack of intermittent fever, he had been about eight days previous under my treatment. Altogether his constitution is

unfavorable for any capital operation, nor is it adapted to endure a lengthened confinement, or a weakening discharge.

Treatment.—This is a case of gunshot wound, accompanied with a severe fracture and a considerable loss of soft parts, a combination of circumstances which, according to the authority of the first Military Surgeons, demands immediate amputation. However, as it appears to me a somewhat peculiar one, I am induced, from reasons which I shall offer in my observations upon it, to abstain from operating, at least for the present, and thus to give the arm a chance. Accordingly, having found a sharp-pointed and projecting portion of bone upon the posterior and inner side of the end of the lower fragment, I carefully drew it through the wound, and removed it with a fine saw, fearing that in any future displacement it might injure the artery. I then removed any spiculæ, or foreign substance to be found in the wound, and cautiously reduced the fracture ; placed the arm upon a padded splint, supported by a small pillow, made and fashioned for the occasion ; cleansed the wound, dressing it with charpie, and gently supporting its sides by perforated straps of adhesive plaster; and secured the whole with a light splint, and easy bandage : ordered the constant application of cold evaporating lotion ; light diet; a mild aperient pill, to be followed, if necessary, by a draught of infusi sennæ et sulph. magnes. Haust. anodyne at night.

Tuesday, 4th February.—Soon after the bones were placed in position, and the wound dressed yesterday, the patient, who had hitherto suffered much pain in the injured arm, expressed himself very much relieved, and he has passed a more comfortable night. The discharge from the wound has increased in quantity, but is of a dark, fœtid, and unhealthy character. Some of the sloughs have begun to separate, and I carefully removed with the scissors such portions as could be safely detached. No appearance of lymph or reparative process about the ends of the bone; and as the periosteum is completely removed from the end of the upper fragment, exfoliation to some extent appears almost certain. Indeed, I fear much that the upper fragment at least must be altogether excised. I have passed my finger up to the vicinity of the joint, both before and behind, and explored as well by a bullet probe, but have not succeeded in detecting any pellets of shot. I must, therefore, trust to their ejection by suppuration. The parts around the joint are rather less swollen than yesterday, and there is no appearance of gangrene in the limb ; skin still hot and dry ; tongue furred ; considerable thirst ; no headache, or return of pain in the wound ; pulse 116, still soft and compressible ; has had a natural motion this morning, accompanied by tapeworm ; ordered to repeat aperient draught, so as to keep the bowels regular, without inducing much action ; diet as yesterday, and to repeat haust. anodyne.

Wednesday, 5th.—General symptoms much as yesterday. The wound has begun to discharge healthy pus from its inferior margin, but that from its bottom and upper portion is unchanged in character ; thirst diminished ; tongue still furred ; pulse 106 ; complains of occasional giddiness, but the constitutional strength does not appear more reduced ; treatment as yesterday, but only to administer the opiate in case of necessity. The arm being slightly more swollen, a small pasteboard splint was removed, so as to relieve it, and allow of the more extended application of the cold lotion.

Thursday, 6th.—Had some sleep last night without opiate ; arm much less swollen, and not so hot to the touch ; proportion of healthy discharge in wound in-

creased, and its lower margin throwing out good granulations ; less thirst ; bowels in proper action ; tape worm discharged ; skin soft; pulse 104 ; ordered same treatment as yesterday, with wound dressed as usual.

Friday, 7*th*.—Passed a good night without anodyne ; wound presenting a more healthy appearance, but the discharge from vicinity of joint very profuse ; some lymph thrown out from sides and posterior surface of upper fragment, but the extremities present no appearance of granulation. Constitutional symptoms also improved ; pulse 102.

Splint re-applied, and the arm placed in the most favorable position. In order to secure a proper descent for the matter from the neighbourhood of the joint, and thus, as I hope, promote the ejection of the shot, I had a double inclined plane constructed by the ship's carpenter, which I succeeded in having cautiously introduced under the patient's mattrass, by which I am enabled to keep the chest and shoulders in an elevated position, without his slipping down in the bed. Diet and general treatment the same.

Saturday, 8*th*.—Had a quiet night, without opiate ; general symptoms improving ; tongue cleaning ; no fever ; wound presenting an increase in granulations, discharge less in quantity, and more healthy. As I found the extreme end of upper fragment becoming black, and the circumference completely denuded of periosteum, a state which must end in necrosis to some extent, and as it was disposed to project, and was very difficult to retain in position, I drew the end carefully through the wound, and having placed a double fold of linen under it, cautiously removed about five-eighths of an inch with the saw. I was thus enabled to retain it more easily in position, and also in some degree diminish the vertical diameter of the wound. I have much reason to fear, however, that the destruction of periosteum and loss of soft parts have been too much to hope for satisfactory union, and that excision of the upper fragment, if not amputation of the whole arm, may be yet required. However, I am naturally desirous of giving the fracture every chance of union beforehand : besides, as the shot, which I conceive to have lodged *above* the joint both in front and behind, must soon begin to descend, the soft parts will afterwards be in a more favourable state for operation.

Monday, 10*th*.—Last two days the patient has been progressing as favourably as I could anticipate, and the removal of the piece of bone on Saturday has been decidedly advantageous ; no fever ; skin soft and cool ; tongue very nearly clean ; bowels in healthy action ; pulse 94, soft and regular.

Treatment.—Idem. Should secondary hæmorrhage not set in, I have reason to hope that ossific union may yet be obtained ; most likely, however, with an anchylosed state of the shoulder joint. From the loss of soft parts, also, there may be difficulty in ultimately healing the wound.

Wednesday, 12*th*.—Progress of case more encouraging. Made a dependent opening high up posteriorly in shoulder, from which matter has flowed. Treatment as before.

Sunday, 16*th*.—State of patient improving : the wound smaller, and its surface florid and granulating; discharge diminished, and generally healthy ; the fracture has also been retained in better position, but as yet very little union has taken place. From the medullary portion of each bone, however, granulations are thrown out, and amalgamating, which induces me to hope for the best. The constitution keeps up ; appetite good ; skin moist and natural ; tongue clean ; bowels

regular ; nights tranquil ; pulse 94, soft and compressible. In the last two days I have extracted sixteen pellets of shot from the opening made upon the 12th, thus verifying my belief that the contents of the piece had lodged about the shoulder. These pellets were all flattened, sharp-edged, angular, and pointed in shape. Treatment continues the same ; dressing the wound carefully every day, with strict attention to the position of the fracture ; occasional alterative medicine, with a more nutritious diet.

Monday, 17*th*.—This morning I was suddenly awoke at about 3 o'clock with the report that the patient was seized with hæmorrhage. Upon arrival at his bedside, I found the Hospital Assistant whom I had left in charge exercising pressure upon the subclavian artery above the clavicle with a padded instrument I had made upon the day of my arrival, and in the proper mode of applying which I had previously instructed him. Having been prepared for such an emergency, I proceeded at once to secure, if possible, the bleeding vessel. When I removed the dressing, however, and sponged away the coagulated blood, I found that the previous pressure, aided by exposure to the atmosphere, and the application of the cold sponging, stopped the bleeding immediately, and, although I searched carefully over the surface of the wound, I did not succeed in finding the open vessel. It was not the axillary artery, as I had suspected, for it was still safe, but from the situation of the only gush of blood I saw, I concluded that the hæmorrhage proceeded from the lower opening of the superior profunda artery. The patient must have lost about 14 to 16 ounces of blood, and was very much reduced in consequence. The wound was kept for some little time exposed, light cold water dressing applied, some restoratives administered, and the utmost quiet enjoined. Whilst examining the wound upon this occasion, and passing the probe high up anteriorly, I could distinctly detect shot laying upon the front of the thorax, beneath the clavicle, and at a point about four inches internal to the acronion process of the scapula. I attempted to extract them with a dressing forceps, but not easily succeeding, I was deterred, from the proximity of the axillary artery, in prosecuting the attempt. The ultimate descent of these bodies may very much endanger the artery.

Tuesday, 18*th February*.—Patient slept well during the night ; no return of hæmorrhage, and the wound presents a better appearance than I could have expected from the disturbance of yesterday morning. Unfortunately, however, the manipulation has interrupted the process of union, and reproduced displacement of bones ; pulse 124, small and compressible, with attendant debility, but skin soft and natural ; tongue clean, and appetite good ; bowels regular ; tape worm in motion ; secretions healthy ; extracted twelve shot from dependent incision. Treatment as before, with diet a little more generous.

Thursday, 20*th*.—No return of hæmorrhage ; strength somewhat improved ; extracted eight shot. Finding an obscure sense of fluctuation in the posterior wall of axilla, I made another depending opening about the centre, which from its position will be advantageous for the discharge of matter, or such shot as may descend. No action of bowels to day ; ordered the following mild aperient draught : Infusi sennæ ℥iss, sulph. mag. 3iij, liquor ammon. acetat. 3ij, tinct. sennæ 3j hoft. haust. General treatment continued.

Friday, 21*st*.—Last night was an anxious one : patient restless and sleepless ; suffered much from pain and burning heat in the arm, which was alleviated by exposure, cold sponging, attention to position, and the removal of anything likely

to cause pressure, or impede the circulation; pulse 104; skin hot; slight thirst, but tongue good; and yesterday's draught has produced a full natural motion, accompanied by tapeworm; extracted six shot.

Great care observed in dressing and position of the arm; cold sponging; and to repeat aperient draught.

Saturday, 22nd.—No return of hæmorrhage, but since the disturbance and displacement of the bones upon that occasion, there has been great difficulty experienced in keeping the fractured extremities in position, the superior fragment projecting anteriorly and externally to the inferior one, and resisting the most studied care to retain it in place. From this state of parts I have much fear that proper ossific union cannot be attained, and still greater fear that from the projection of the bone the wound may ultimately degenerate into an open ulcer. If his life be yet spared, however, and such a state of parts should be the result, the option of excision of the upper fragment, or amputation at the shoulder joint, will still remain, and that at a time when the soft parts around will be in a fitter state for operation, and the patient's strength, I should hope, better able to endure the shock of so formidable an operation.

Monday, 24th.—Passed a rather restless night: no pain in the arm, but a constant burning and tingling sensation in the hand and fingers, although great care is observed to avoid pressure or annoyance of splints or bandages.

Aperient draught has produced one good stool, accompanied with tapeworm; tongue clean; skin soft; pulse 104; extracted nine shot from the opening behind shoulder.

Tuesday, 25th.—Last night, whilst sitting up with the patient, I was called to his bedside at midnight, in consequence of blood appearing on the arm. This I soon saw issued in great volume from the bottom and inner side of the wound, high up in the axilla. From its florid colour, the situation whence it came, as well as the influence produced upon it by pressure upon the subclavian artery, I could have little doubt that it proceeded from an opening of the axillary artery, high up. Resolved that the poor fellow should not bleed to death without some effort to save him, I was proceeding, whilst the Hospital Assistant kept up pressure upon the subclavian above the clavicle, to cut down upon the artery at its bleeding point, but when I reflected upon the great depth of the artery at that situation, the thickened, matted, and disordered condition of the parts produced by the slow descent of the shot, engorged, too, as they now were with extravasated blood, and, moreover, the mutilation required in this operation, I considered it would be giving the patient a better chance to secure the subclavian artery as it emerges from under the scalenus anticus. Accordingly, having found, upon the moment of my arrival at the bedside of the patient, and which, indeed, was my first act, that by plunging the thumb of my left hand into the wound, and forcing it high up into the axilla, between the axillary artery and brachial flexus of the nerves in front, and the head of the humerus and neck of the scapula posteriorly, and at the same time placing two of the remaining fingers upon the front of the chest, and two in the axilla, I could thus, in the mass of soft parts included between the thumb and fingers, so compress the artery and plug up the wound as to command the hæmorrhage, I caused the Hospital Assistant to place himself in the same position, and whilst he thus restrained the flow of blood, I proceeded, by the aid of candle-light, to include the subclavian artery in a ligature. I commenced the operation by first drawing down the inte-

guments of the neck by the fingers of the left hand spread over the great pectoral muscle. I then made my first incision down upon and in the long axis of the clavicle, dividing at once the skin, platysma, and superficial fascia. When the skin was relaxed, this incision occupied a position about three-eighths of an inch above the upper edge of the clavicle, and extended from the posterior edge of the sterno-mastoid to the anterior fibres of the trapezius, and was about three and a half inches in length. By then dissecting carefully through the subjacent cellular tissue, the posterior belly of the omohyoid muscle and external jugular vein were brought into view, both of which were retracted to the outer side of the wound. A small artery was here wounded, which was included in a ligature. I then attempted to use a grooved director for the succeeding steps of the operation, but found that without unwarrantable pushing and tearing of parts I could not insinuate it under fascia or tissue, so I proceeded solely with my scalpel and forceps towards the completion of my operation. Dissecting cautiously forward, I next exposed the internal root of the brachial plexus, which was large and oval shaped ; but, from its white color, cord-like feel, and being devoid of pulsation, I had not a moment's hesitation as to its character. Still continuing my dissection forward, I arrived at the scalenus anticus, by following the outer edge of which I was conducted to the artery, which I found pulsating as it rested upon the first rib. I then attempted to insert the point of the aneurism needle under the artery from below upwards, but was prevented by an extension of fascia from the outer edge of the muscle, which formed a sort of sheath for the vessel. This I pinched up between the points of my forceps, and made a small incision in it with my scalpel. I was then able with facility to pass my needle from below and before under the artery, and as its point was obstructed on the upper side by a covering of this same membrane, I gently scraped it with the point of my scalpel, and so cleared it. At this stage of the operation I was scrupulously careful not to detach the artery from its immediate connections. The ligature was then seized with the forceps, the aneurism needle withdrawn, and by putting the ligature gently upon the stretch, and compressing the body included in it, I was quite satisfied by its pulsation that I had included the artery, and that alone. This I then tied in a good, tight double-reef knot, observing the caution of keeping my thread at right angles to the axis of the artery. The pulsation in the axillary artery ceased at once, and the hæmorrhage was completely arrested. The wound was then closed by double suture, both ends of the ligature conducted from the depending extremity of the incision, and light water dressing applied. The patient, who had lost from 12 to 14 oz. of blood, was in a state of extreme exhaustion, and complained upon the moment of some oppression of breathing. The latter feeling soon subsided ; pulse 154, small and thready. By the careful administration of wine, hot milk, and a very concentrated soup given frequently, and in small quantities, he began to rally considerably, and by noon next day the pulse had fallen to 116, fuller in volume ; and he expressed himself much stronger. The left radial artery has quite ceased to pulsate, but the temperature of the arm is not diminished.

Wednesday, 26th.—No re-appearance of hæmorrhage. Patient passed a good night, and expresses his strength considerably restored ; appetite good ; tongue white, but clean ; no thirst or headache ; pulse 118, firmer to the feel ; countenance pale, and somewhat anxious ; wound over subclavian uniting kindly ; removed the sutures this morning ; old wound discharging bloody serum and unhealthy matter ;

left arm pale, but its temperature not diminished, and there is a slight pur or thrill in the radial artery, which occasinally amounts to an almost perceptible pulsation ; sensation in the hand and forearm remains as before the operation ; no action of bowels. R infusi sennæ ʒiij, gentianæ, quassæ, aa. ʒiss, tart. soda et potassa ʒss, tinct. scnnæ ʒiij, liqr. ammoniæ acetat. ʒvi, m. ʒiss 6ta quaque hora ad alvi dejectionem. Considering it unadvisable to produce any amount of action of the bowels, I ordered this mixturc to be stopped as soon as one motion was produced.

As the supply of blood through the main channel of the limb is now cut off, and there is much ground for dreading the accession of gangrene ; as thcre can be little prospect of producing union of the fracture now, and the arm, even if preserved, cannot be expected to be of much use, I am of opinion that it may possibly be giving the patient the best chance of his life to remove it at the earliest moment that he may be considered capable of enduring the shock of the opcration, and this even before the separation of the ligature from the subclavian, and as early as to-morrow, should thc strength of the patient admit. In fulfilling such a resolution, however, I shall of course be careful to be implicitly guided by the state of the wound over the subclavian ; state of old gunshot wound ; the circulation and condition of the affected arm and shoulder, as well as the general symptoms of the patient. The reasons which induce me to entertain this apparently fool-hardy, if not unjustifiable idea, shall bc alluded to in the observations to be appendcd to the case.

Thursday, 27*th*.—Patient passed a good night, and the general symptoms are improved this morning. However, my somewhat bold idca of immediate amputation has bcen quite dissipated for the present, for upon examination of the wound over the subclavian I found that the discharge, though of a good color, was rather thin, and the incision, which was united in its whole extent yesterday, has opened at two points, the cdges of which are palc and flabby. This state of parts is quite sufficient to deter me from attempting anything which can disturb the system at the present moment, and I am resolved, unless some very emergent circumstanccs should justify it, not to proceed with anything further until I shall sec the ligature safely cast off from thc artery. This resolution is also strengthened by other circumstances which are of an encouraging nature. The old wound has begun to resume a healthy action again ; the arm still retains its warmth and some degree of scnsation, and there is a very faint but perceptible pulsation at the wrist, which is synchronous with the heart's action. These appearances secure me from the dread of immediate gangrene. There was also onc good natural dejection, accompanied with tapeworm ; no thirst ; no headache ; the skin soft, and not much bcyond the natural temperaturc ; tongue moist, slightly furred ; appetite good ; pulse 120, quick, but soft. Thc fracture is quite disunited, and the extremity of thc upper fragment projects though the wound ; should any attempt be yet made to prescrve the arm, this at least must be excised from the joint.

Treatment.—The arm placed in an easy position, and lightly covered with cotton wool : wound carefully dressed, and the utmost caution enjoined regarding thc wound over subclavian ; diet mild but nutritious ; to omit aperient mixture.

Thursday, 28*th*.—Passed a very wakeful night, though he had no pain in the arm : countenance palc, and somewhat haggard ; visible pulsation of carotid and subclavian. The edges of wound over subclavian separated in some points, pale, and secrcting a thin discharge. Thc surface of old wound also looks flabby : ob-

served some specks of blood on the gums, which are soft and spongy, and have for years been easily made to bleed. These appearances cause me much anxiety. The pulse, however, is better, 108, and soft; tongue clean; appetite good; skin natural; left arm still retains a good temperature, and there is a slight pulsation at the wrist, as yesterday; extracted five pellets of shot from incision behind shoulder.

Same treatment, *with diet a little more substantial.*—6 P. M.—Wound over subclavian discharging thin matter during the day, and there has been pain in it during the afternoon; throbbing of carotids and subclavian very visible to the eye, as well as a strong bruit arterre perceptible to the most delicate touch; tingling, burning pain in the left hand. My anxiety is much increased for to-night: pulse 118; general symptoms as morning.

Saturday, 1*st March.*—The night has passed over without any untoward event, and the patient has slept passably. Discharge from the seat of ligature improved; the old wound looking florid and healthy; throbbing of carotids not so visible, and the bruit arterre diminished in intensity; pulse 104, more steady; temperature and pulse of left arm much as yesterday: altogether the general symptoms appear to be improved to-day, a state which I attribute to the more solid character of yesterday's food. Same treatment continued.

Tuesday, 4*th.*—Has rested well for the last three nights, and general symptoms improving, with exception of occasional tingling, burning pain in hand; pulse 100, soft, and fuller.

Wednesday, 5*th.*—Passed a rather wakeful night, so that there is some little excitement to-day: pulse 114; state of both wounds, however, still encouraging; pulse in left radial artery quite perceptible, but irregular. In consequence of no action of bowels yesterday, one dose of the tonic aperient mixture was administered at 6 o'clock this morning, which has produced a copious stool, with considerable discharge of tapeworm.

Saturday, 8*th.*—Progressing favorably, but there is an increase of suppuration from shoulder, with pain; scarcely any discharge from seat of ligature; pulse rather frequent, and the bowels irritable; extracted twenty-eight shot from axilla. Ordered pulv. cretæ comp. c. opio gr. viij, hyd. c. creta gr. iv, quinæ disulphat. gr. iss h. s. sumend.

Sunday, 9*th.*—Extracted thirty-two shot from counter opening in axilla. Repeat pulv. nocte.

Monday 10*th.*—No change in general symptoms; copious discharge from posterior incision, which appears to proceed from the joint; temperature and appearance of arm natural, and the pulsation of radial artery more perceptible, but irregular; bowels twice moved; pulse 112. Repeat pulv. nocte.

Tuesday, 11*th.*—No change to-day. Omit pulvis.

Thursday, 13*th.*—Ligature came away safely this morning at 7 o'clock, being in in all sixteen days and six hours from the period of application; pulse less frequent, 104, soft and regular; skin moist and cool; tongue clean; appetite good; bowels regular; temperature and circulation of left arm as before. No medicine prescribed.

Friday, 14*th.*—Patient improving; extracted four shot.

Wednesday, 19*th.*—Patient progressing favorably since separation of ligature, and the line of incision healing favorably; discharge from old wound healthy and very much diminished: the surface also filling up with good granulations, and its edges contracting; the extremity of upper fragment still projecting through the

wound, and there is a flow of synovia from the joint. The treatment now rests betwixt amputation at the shoulder or excision of the upper fragment. The circulation and temperature of the arm continue good, and there is no appearance of gangrene. The end of lower fragment has also become attached to the inside of upper by a firm granular mass, which extends towards the capsule of the joint. There is a small portion, however, on the inner surface of the bone, deficient of granulations, which must in time exfoliate to a superficial extent. The patient has had excellent nights, and sat up out of bed for a short time to-day.

Saturday, 29th.—The improvement has been steady and regular since last report: wound over subclavian almost healed; old wound contracting, and discharge much diminished; a lamella of upper fragment has exfoliated to-day; discharge of synovia has ceased; general symptoms good.

Friday, 4th April.—The necrosed portion of lower fragment, which consisted of a lamella upon its inner aspect, was brought away to-day with the forceps, so that I believe no more dead bone remains; the surfaces of the two fragments are adhering by a pretty firm granular substance, but I scarcely anticipate a bony union; no further discharge of synovia. From the encouraging state of the wound, and general constitution, I am induced to hope that, by clearing the projecting portion of upper fragment, and sawing it off on a level with or if possible deeper than the general surface of the wound, I may be enabled to have sufficient integument left to cover in the end of the bone, and ultimately produce cicatrization of the ulcer. This would be a less severe procedure than complete excision of upper fragment, and should ossific union be ever attained would secure a stronger arm.

Tuesday, 15th.—The line of incision over subclavian having been quite cicatrized, and the patient duly prepared, I proceeded to-day to remove the obnoxious portion of upper fragment. As its outer surface, and a portion of its end, were still covered with soft parts, it required a little dissection to completely expose the bone so as to allow of its being properly sawn off. This I effected by two incisions, one proceeding from the superior corner of wound backwards and a little upwards, the other transversely and a little downwards, below the projecting end of bone. These included a flap nearly of the form of a truncated V, with the base posteriorly. This I dissected backwards, preserving even the granulations in my care of the soft parts. Then grasping the prominent end of the bone firmly with the fingers of the left hand, and lifting it up from the surface of the wound as much as possible, I applied a metacarpal saw flatly upon the arm, and, sawing upwards towards the shoulder, removed a large wedge-shaped portion of bone, the apex of which had been next the joint. The flap was then replaced, so as to cover as well as possible the end of the bone; and after all oozing of blood had ceased, the wound was properly dressed, and the arm secured in a steady position.

Friday, 25th April.—Since the operation on the 15th, the patient has been doing well, and the wound granulating, and discharging healthy pus. To-day I made an incision into a small collection of matter on posterior surface of shoulder, from which I extracted four pellets of shot; strength of patient improving, and general symptoms favorable.

Thursday, 8th May.—The patient is now walking about, and the old wound healing in steadily. I have had a couple of gum splints constructed, which envelope the side of the chest, the shoulder, and arm, down to below the elbow. By the aid of this shield I am enabled to keep the fractured bone in a quiet, steady position,

and am yet led to hope that by proper care, and sedulously preventing any motion at the seat of fracture, a pretty firm union of the bone may still be attained. The general health and strength of the patient is almost quite restored. Diet and general treatment such as is calculated to promote strength.

Monday, 12th.—To-day the patient was embarked on board the steam-frigate "Auckland," for passage to Bombay, his strength so far restored that he was able without fatigue to walk some little distance to the beach; the arm retained in the gum splints.

Bombay, Thursday, 22nd May.—Last evening the patient arrived safe at this port from Bassadore, the wound all cicatrized to about the size of a shilling at its centre, and this healthy and closing rapidly. The fracture is pretty firmly adherent, though it can scarcely be considered ossific: there is much reason to hope, however, that the latter object will be yet attained. Health and strength quite re-established. The patient has been sent on shore to-day to the Naval Sanatarium, under the charge of Assistant Surgeon Reynolds, the Port Surgeon.

Aden, Friday, 8th August.—A few days after last report I was unexpectedly dispatched from Bombay to this place, so that in the mean time I was debarred from observing the progress of my patient. To-day, however, he arrived here upon his passage to England, and I had an opportunity of examining him. He is in robust health. The gunshot wound has quite healed over, and the union of fracture has become perfectly *firm and ossific.* He has full power over the motions of the hand, forearm, and elbow joint; and has exceeded my best expectations in being able also of himself to perform *all* the motions of the shoulder joint. The power of the limb, as was to be expected, is of course yet feeble; but it is beyond all doubt that ere the expiration of six months he will have an excellent arm. It is a matter of surprise to me, too, that notwithstanding the excision of the portions of humerus, and the present overlapping of the fragments, there is, upon the most careful measurement, a shortening of the limb to the amount only of an inch and a half.

Remarks.

This interesting case of formidable gunshot wound was one in which the injury inflicted was of such a character as to fall clearly within the rules established for immediate amputation. However, after maturely weighing the many peculiarities of the case, which appeared at the moment to discourage the expectation of a favorable result after operation, as well as some few circumstances which seemed to justify the attempt to save the arm, I inclined to the latter line of proceeding; and, although in pursuing this course of treatment a great amount of suffering was incurred, and the life of the patient only preserved by the prompt performance of a most hazardous surgical operation, yet, from the nature of the cause leading to this latter necessity, I cannot but entertain the belief that a similar train of occurrences would have been as likely to have followed, even had amputation at the shoulder joint been performed in the first instance.

The reasons which led me to adopt the above line of treatment, and to abstain from immediate amputation upon my first seeing the patient, were as follows:—

1st.—Five clear days had elapsed since the receipt of the injury, and the parts above and around the joint were consequently very much inflamed and swollen.

2nd.—The patient was in a state of so great debility, and there was so much

constitutional irritation, that I had reason to fear he would have sunk under the shock of so formidable an operation as amputation at the shoulder joint.

3rd, and most particularly.—The shot had passed up and lodged so high *above* the joint, both in front and behind, that amputation at the articulation would not have completely removed the foreign body ; and from the small volume and scattered position of the shot, it did not appear to me justifiable to attempt cutting after them.

4th.—The parts of which the greater portion of the flaps must have been formed were so contused and lacerated, that it appeared to me hopeless to expect to obtain union by the first intention ; thus a much larger secreting surface would ultimately have been formed, which would, in all likelihood, have run the patient down by discharge.

5th.—As the flaps would not have healed kindly, it appeared to me that the chances of secondary hæmorrhage from the axillary artery would have been very much increased by the operation.

6th.—There was no other Surgeon present to assist me, and the two Hospital Assistants, being unacquainted with anatomy, were not to be well depended upon. This circumstance, however, would not have deterred me, had I considered the operation imperatively necessary.

Such were the reasons forbidding operation. Then came the condition of the arm itself, which was found to present appearances in some degree encouraging the attempt to save it. The main artery of the limb was safe, there were no fissures to be found in the long axis of the bone. The median nerve could not have been injured. The arm below the wound was of the natural temperature, and there was no appearance of gangrene. Besides, the patient is a young man ; and, moreover, from the nature of his profession, it was of the most vital importance to him to preserve him ever so imperfect an arm. Connected with this, the season of the year was favorable. He was lodged in a clean, comfortable, and well-ventilated room, and had the advantages of good care and excellent nursing, as well as an adequate supply of the requisite surgical appliances. Under those circumstances I resolved to give the arm a chance, and accordingly pursued the course of treatment noticed in my report of the case. How the case would have proceeded had not secondary hæmorrhage set in, it is of course difficult to say ; but had the shot been ejected without any untoward event, I entertained the hope that ossific union of the fracture would have been obtained, and the wound ultimately healed over the part.

With respect to the causes which gave rise to the secondary hæmorrhage, it is more than possible that the first occurrence of it may have been in some degree induced by the pressure of splints or bandages in my persevering attempts to preserve a proper position of the fractured bone; but the second instance I can have little hesitation in believing proceeded from a cause over which I could not exercise control, and of the dangerous character of which I had been fully sensible from an early period in the progress of the case. This was the descent of that portion of the shot which had lodged beneath the collar bone, and whose course I knew must come so very close to the artery. It may appear difficult to comprehend how a spherical body like shot could in its descent produce an opening in an artery possessed of so thick coats as the axillary, but by referring to the diary of the 16th February it will be seen that every pellet extracted was altered in shape in a re-

markable manner. Some were flattened, with an edge like a knife, some pointed like a spear, others angular, and all more or less changed in form. This effect was produced by the force with which they struck against the hard and resisting body of the humerus. It is very easy to conceive, therefore, how soon one of these spear-pointed bodies, resting on the surface of a pulsating artery, would produce an opening in its pariety. Such I believe to have occurred in this case.

With respect to the treatment adopted on this trying occasion, it must of course be always more safe and satisfactory in cases of hæmorrhage from arteries to cut down upon the vessel at the bleeding point, and secure it in a ligature above and below the opening ; but the difficulties which here presented themselves in effecting this object seemed to me insuperable, so that I preferred the operation, which has happily been attended with a favorable result. My position at the moment I certainly felt to be a most critical and anxious one. Without the aid of another Surgeon, at the hour of night, and with my patient lying in an inconvenient posture, I was forced to undertake an operation which at all times requires much previous consideration, and the exercise of considerable coolness and resolution, in the execution of it. I was fortunate, however, in having encountered no obstacle during the proceeding, and everything succeeded even more favorably than I could have anticipated. It will be observed that during the operation I was obliged to lay aside the use of a director, and proceed solely with my scalpel and forceps, even to the opening the sheath of the artery. As there were no retractors in the case of instruments, I had previously procured a couple of German metal spoons, which, curved at the ends, I found to answer the purpose sufficiently well.

Fearing also that the Hospital Assistants were not sufficiently acquainted with the course and situation of the subclavian artery to keep up effectual pressure with the thumb, in case of such necessity I had tried to procure a large key for that purpose, but failing in this I prepared a smooth piece of wood, about five inches long, one and a half inch broad, and half an inch thick, which, cut square at the end, and carefully padded with fine lint, served the desired object.

The appearance of the knot of the ligature after its separation was somewhat peculiar. I had expected to find that the space in which the artery had been included would have formed a circle of perhaps from three-sixteenths to one-fourth of an inch in diameter, but from the firm manner in which I tied the knot, and the contraction of the silk which must have followed from its lengthened maceration in the purulent matter, the space alluded to was scarcely a line in diameter. This was, no doubt, in some degree produced by the knot becoming relaxed or elongated towards the centre of the circle as the ulceration of the artery proceeded, and its resistance to the extension of the knot was consequently removed. I had observed, however, upon the occasion of the operation, that the artery appeared to me of small calibre for that class of vessel, and its coats attenuated.

It will be remembered in the report of the case that, upon the second or third day after applying the ligature to the subclavian, I had entertained a very strong idea of amputating the arm, as the most likely course to save the patient's life. This apparently unwarrantable idea did not occur to me without being coupled with what appeared to me at the time to be pretty justifiable reasons. These I may enumerate as follow :—

1st.—As the flow of blood through the main artery of the limb was now quite obstructed, the case resolved itself into a gunshot wound, attended with

a bad compound fracture, considerable loss of the soft parts, and wound of the main artery ; a state of parts which, according to the authority of the first Military Surgeons, demands immediate amputation.

2nd.—From the reduced diameter of the soft parts, in consequence of their previous destruction, through which the collateral circulation to the limb was to be carried on, it appeared evident almost beyond a doubt that gangrene of the limb must set in at an early period.

3rd.—By the previous inflammation and suppuration beneath the clavicle, in the axilla, and around the shoulder joint, a large number of the capillaries and small vessels must have become obstructed, and others been destroyed ; thus a further obstacle to a free collateral circulation would be presented, and the probability of gangrene enhanced to the same degree.

4th. —As the supply of blood to the lower fragment would now be much diminished, it appeared to me that it would thus be incapacitated for performing its necessary part in the process of ossific union.

5th.—If from gangrene or other cause it became essentially requisite to remove the arm at any period before the separation of the ligature and the expiration of such time as would ensure perfect security against hæmorrhage from the subclavian, I conceived it would be more safe to proceed before the fibrous coat of the artery had to any extent taken on its ulcerative process, whilst the seat of the ligature was surrounded internally and externally by coagulable lymph, and the cavity of the vessel was occupied by a firm coagulum of blood, a condition of parts which appeared to me more likely to resist the impulse of the blood, and the excited state of the circulation induced by so formidable an amputation, than if sufficient time were allowed for the ligature to have progressed in the production of ulceration.

6th.—As in the reduced and debilitated state of the patient it was of vital importance that not one drop of blood should be lost that could be avoided in the operation, I considered I would be more likely to achieve this object by operating before the collateral branches had time to become enlarged.

7th.—If the operation were for any time deferred, the circulation might be again established in the axillary by the thoracico-acromialis, and other branches of that vessel, and so lead to a repetition of the hæmorrhage from the same opening in the artery.

8th.—I would have been enabled, in the progress of the operation, to have searched high up upon the inner flap in the axilla, and if successful in discovering the exact seat of the hæmorrhage from the axillary artery, passed a ligature around the vessel above and below the opening, and have thus been secured from a return of bleeding from the distal end of the artery, or from a flow of the blood carried by the collateral circulation into that portion of the artery between its opening and the seat of ligature upon subclavian.

9th.—It also occurred to me that if I deferred the operation the continued drain of the old wound would so increase the debility of the patient as to reduce to a considerable degree the chance of a healthy separation of the ligature from the subclavian, and thus promote the probability of secondary hæmorrhage at that point.

10th.—To defer the operation for a fortnight or three weeks in a patient already confined one month to bed ; who was much reduced by previous suppuration, and two violent attacks of secondary hæmorrhage, not to speak of the almost fatal loss

of blood upon the occasion of the accident; who was to suffer yet from a tedious suppuration; and for whom there was the almost certain prospect of rapid gangrene, appeared to me to be consigning him to a most inevitable fate.

Such is an enumeration of the reasons which led me to entertain the idea of amputation at such a period, in referring to which it must be borne in mind that the case at the time appeared to be quite a forlorn hope, and I conceived that it was only by some bold *coup de main* that success was to be attained. It may possibly appear that a more favorable moment for amputation would have been immediately upon securing the subclavian, but then the patient was so reduced by the hæmorrhage, as well as the pain of the previous operation, that there was little probability of his enduring any further shock to the system. Indeed, though the hæmorrhage had been so completely arrested, the patient for the succeeding two hours appeared almost *in articulo mortis*, and my hopes of his surviving were very faint indeed.

An interesting feature in the history of the case is the facility with which the circulation was continued in the affected arm after the application of the ligature, and that under circumstances which must be considered very unfavorable for that purpose, viz. a large portion of the soft parts had been carried away in the first instance, afterwards many of the capillaries and minute vessels around the shoulder and in the axilla must have been destroyed by the suppuration which ensued, as well as a large number thickened and obliterated by the swelling and inflammation. In addition to this, the propelling power of the heart, and the force of the general circulation, had been much reduced by the previous losses of blood and protracted confinement to bed. Yet, notwithstanding these disadvantageous circumstances, we find that the temperature of the arm still continued unabated; no appearance of gangrene presented itself, and in thirty-six hours after the operation a pur or thrill was perceptible in the radial pulse of left arm, which, on the third day after the operation, amounted to a distinct though faint and irregular pulsation. The old wound below the seat of ligature also progressed favorably, presented healthy granulations; secreted a laudable pus, and evinced no appearances of a deficient circulation. It thus forms a marked exception to the general experience that gangrene more frequently occurs after the tying of arteries for wounds than for aneurisms, and would also offer an argument against the supposed advantage in the latter disease of deferring the operation until the aneurismal tumour had attained a certain size, and such a period had elapsed as would allow time for the collateral circulation to have become developed. It must be borne in mind, however, that the patient in the present instance was a young man, though I cannot say that his constitution was otherwise the most favorable.

During the progress of the case, my attention was repeatedly attracted by the frequent tingling burning sensation along the arm, but especially in the palm of the hand and fingers, and which appeared to be a warning symptom of the occurrence of hæmorrhage.

It was somewhat curious that the profunda artery should have been torn across so very close to its origin from the brachial without the latter vessel suffering, but my idea is that this injury was caused by the sudden displacement of the bone, and not by the impulse of any of the shot. As the profunda arises from the brachial, it almost immediately winds round the humerus in a groove of the bone formed for its accommodation. The fracture occurred but a short distance above this groove, and as the lower fragment was rapidly and forcibly driven

backwards at the moment of fracture, the artery must have been stretched to such an extent as to cause it to give way.

It is interesting to trace the progress of the union of fracture under the peculiar circumstances of this case. During the first fortnight, whilst the main artery of the limb was safe, and before any hæmorrhage took place, the union appeared to proceed as favorably as could be expected. But from the occurrence of hæmorrhage, and more particularly after the application of the ligature, the process seemed to be quite arrested, and it was only some two months after the operation that ossific deposition can be considered to have really begun again, and this so gradual as to mark with accuracy the regular return of the necessary supply of blood to the lower fragment. Indeed, from the shortness of the upper portion of bone, I was very doubtful after the operation whether either extremity would attain sufficient vitality to establish ossific union.

One of my first acts after examining the case was to enumerate the pellets of shot contained in the charge. These amounted to about 340, yet the whole number extracted did not exceed 170, and from there being no appearance of any tearing outwards of the margin of the wound but of that of inversion, I believed that the whole shot must have lodged in the soft parts about the shoulder. It might possibly have happened that from the extensive area of the wound, a portion of the shot may have rebounded from the bone at a sufficiently acute angle to have passed out again without coming into contact with its edges, but this is scarcely probable. It appears, therefore, pretty certain that numbers of shot must still remain behind, but if so, they have become so encysted as to cause neither pain or annoyance of any kind.

In considering farther what practical deduction might be drawn from this case, it has occurred to me whether, in some cases of compound comminuted fractures of the arm or thigh, attended even with destruction of soft parts, it might not encourage, *under favorable circumstances, and in eligible cases,* the more frequent attempt to preserve the member. Suppose an example of this kind occurring in the arm or thigh, where there was also some destruction of soft parts attending it. If it were found that the bone above and below the seat of injury was perfect, with no fissures, the joint not implicated, and the comminuted portion not occupying more than an inch to an inch and a half of the length of the bone, might it not be admissible to make a transverse section with the saw in sound bone above and below the seat of fracture, completely remove the injured portion of bone, and approximating the ends and retaining them in position, promote a union of the fracture and the healing of the injured soft parts? One of the advantages attending this practice, as in the case before us, would be that by the shortening so produced the loss of soft parts would in some degree be counteracted by the approximation of the upper and lower margins of the wound, and the process of granulation and healing expedited accordingly. In support of this suggestion, I might also adduce the different cases of successful excision of the knee and elbow joints; and in the case before us we see that after the removal of five-eighths of an inch of the whole cylinder of the bone, and the subsequent section of a very large wedge-shaped portion, attended, too, with great destruction of soft parts, and other disadvantageous circumstances, nevertheless the result was such as to exceed the most sanguine expectation. For obvious reasons this practice would be more desirable and frequently more admissible in injuries of the arm than in those of the lower extremity. The circumstances

attendant upon such a case must of course very much influence the decision of the surgeon, for if occurring in a campaign or in a naval action, where the time and services of the surgeon are otherwise largely drawn upon, where the comforts and conveniences may be very limited, and where the patients are so frequently subjected to movement from place to place, it is scarcely necessary to say that such a practice would only be setting at nought the extended experience of all Military Surgeons. In this case, indeed, it was only by the most constant watching that the life of the patient was preserved, my anxiety being such that for a whole month I never ventured to the distance of fifty yards from his bedside. In offering these suggestions, therefore, I am disposed to make many reservations, fully impressed as I am with the great responsibility incurred, and the profound judgment requisite in discriminating such cases as might be considered suitable for such a line of practice.

No. 2.

Notes on an Opium-eater. By M. Stovell, Esq.

Presented February 1851.

J. G., 47 years of age, clerk in one of the public offices, was admitted into the European General Hospital on the 25th ultimo, with slight rheumatic pains, but otherwise apparently in good health. At my morning visit on the 27th, two days after his admission, I found him restless, nervous, and tremulous, with great prostration of nervous and muscular energy. He appeared, in short, on the verge of delirium tremens, and on close examination into the cause of this state, I ascertained that he was a confirmed opium-eater of twenty-one years. He told me he had taken ten grains the morning of his admission, a short time before coming in, and that he had felt perfectly comfortable during the first four-and-twenty hours, but at the expiration of that time, as the effects of the opium wore off, he became weak, nervous, and wretched, with complete loss of appetite. During the subsequent night he was in a state which he described as being "worse than the horrors." He said he had only slept for half an hour at a time, and had repeatedly started up in great distress and misery. Ten grains of solid opium were given, and within an hour he was quite himself again, recovering his usual amount of nervous and muscular energy, and also his appetite. During the few days he remained in Hospital he every morning took a dose to this extent, and he left the Hospital looking as well as most of the people about him. There was, in fact, nothing in his appearance which indicated anything unusual in his state, either of mind or body.

I enquired very minutely into the man's previous history, and it may perhaps not be uninteresting to give the following outline. He arrived in the country in 1819, at the age of sixteen. He was ten years in the Artillery band, stationed at Matoonga, and during that time appears to have led the usual dissipated life which all men in the band at that time did. He acquired the habit of drinking hard, and

frequently took two bottles of arrack daily. For a long time he felt none the worse for this, but got up the following morning as well as ever. He thus acquired that taste for drinking which has clung to him through life. After ten years' service in the band, he left it, and entered the Indian Navy in 1829 as a seaman. At the end of that year he sailed in the H. C. Sloop of War "Clive," for the Eastern Coast of Africa. During this voyage he had severe pains in his limbs, for which he appears to have taken laudanum with great relief. Without the knowledge of the Medical Officer of the sloop, he managed to procure a daily supply of this for some months, to the extent of a drachm and a drachm and a half, and after a time began "to crave for it much more than for his food." On returning to Bombay, and not getting his dose of laudanum, he felt an unusual depression of spirits, with general restlessness, and complete prostration of strength. On obtaining his usual dose, however, these unpleasant feelings disappeared in the course of half an hour, and he felt as well as ever. He then began to purchase opium in the bazar. He soon took a daily dose to the extent of twenty grains, and rapidly increased it to much more. I find by the hospital records that he was admitted as a patient in March 1845, from the effects of drinking, and I find a statement by Dr. Peele, who attended him, that he was then, by his own account, in the habit of taking forty grains twice a day, and that he had done so for fifteen years. He continued all this time to lead a life of dissipation and intemperance, and was repeatedly attacked with delirium tremens. He was several times admitted into the European General Hospital in this state. I also find by the records that he was once admitted in 1844 from the H. C. Steam Frigate "Semiramis," the Medical Officer of which stated that he was "of very dissipated habits; repeatedly the subject of delirium tremens, and with a constitution completely broken down by long-continued excesses." His prevailing symptoms had been "nervousness, with great irregularity of bowels; constipation, alternating with diarrhœa; head-aches, sickness, and numbness and weakness of the limbs." The only wonder appears to be that he is now alive. He left the Indian Navy in 1845, and happily, soon after, fell in the way of that excellent man, the late Archdeacon Jeffreys, whose influence was most beneficially exerted. His habits of drinking were completely abandoned, and I am assured by the Apothecary of the Hospital, that for a whole twelvemonth, scarcely a day elapsed in which Mr. Jeffreys did not keep up his influence by personally visiting him. When his habits of drinking were reformed, he married a girl from the Byculla Schools. This was about two years ago, and he has now a child. On the return of Mr. Jeffreys to Europe he relapsed partially into his habits of intemperance, but I have reason to believe to a very limited extent. During all this time he continued the use of opium, but began to diminish the dose gradually in 1846. He now takes only ten grains a day.

Such is the outline of the life of this opium-eater. He says he has spent thousands of rupees in purchasing it, and on one occasion, when he had great difficulty in procuring it in the Persian Gulf, he every day for some time paid a Sepoy on board one rupee for about 7 or 8 grains. The procuring a dose under these circumstances he describes as being like a "reprieve from the gallows," and "rather than not get it he would sell everything belonging to him." When he takes it regularly he says he feels in perfect health; eats well, sleeps well, is in good spirits, and all the functions are properly performed. His appearance is that of a man in excellent health, bearing in mind that he has been thirty-one years in the country.

It no doubt requires great moral courage and strength of mind to desist from the practice when once acquired and long indulged in, and I think the man in question has proved his possession of these qualities, in some degree, by so materially diminishing the dose, and I am by no means without hope that he will gradually still further diminish it. He is quite aware that he purchases but a treacherous and deceptive vigor, and is somewhat ashamed in confessing that he is dependent on artificial means for sufficient energy to enable him to perform the ordinary duties of life, but he describes the longing for his dose as something at times quite uncontrollable.

The habit of opium-eating among Europeans in this country is, I believe, exceedingly rare. Not so, however, at home. We every now and then meet with startling accounts of its extensive use, and the fact may be safely inferred from the enormous quantity of opium annually imported into Great Britain. Yet, notwithstanding this, our knowledge of the effects of its habitual use is exceedingly limited and unsatisfactory. Its consumption, moreover, is by no means limited to the lower classes. We are told by a man of large experience and close observation,* that "not a few persons in the upper ranks of life are confirmed opium-eaters, without even their friends knowing it." That this is the case there is too much reason to fear; but as people habitually indulging in its use would naturally endeavour to hide the practice from observation, it is but seldom that the subject acquires much public notoriety, except, perhaps, in the case of men who have achieved celebrity in some way or other, and on whom, in consequence, the prying eyes of curiosity are constantly fixed. Among the literary men of modern times, for instance, who have indulged freely in this pitiable habit, we all know that Coleridge and De Quincy long stood foremost. We also know that the conversational powers of the former were greatly influenced by this habit, and we further know that he was a miserable man.

Our ignorance of the effects of its habitual use was pointedly noticed by Dr. Christison, who said, in 1832, that it was singular how very little was known by the medical profession of the effects of opium-eating on health and longevity. As a proof of this he referred to the celebrated trial connected with the Life Insurance of the Earl of Mar, who was supposed to have been a great opium-eater. On the trial in question some of the leading men in Edinburgh, viz. Drs. Abercrombie, Duncan, Alison, and Christison, deposed that the practice of eating opium must tend to injure and shorten life, but they all at the same time admitted that they had scarcely any direct experience in the matter.†

Since that time the result of later observation and experience has no doubt partially changed this state of matters, but still we are in want of further and more precise information on the subject. Most men naturally conclude that the habit must almost inevitably lead to more or less derangement of the assimilating functions, and to local congestion in the cerebral organs, but I am not aware of there being any strict statistical evidence on the subject. Dr. Christison, however, has collected twenty-five cases from various quarters, by which we learn that opium has in some instances been taken in large quantities for forty years together without producing any marked injury to health. He states, however, that although

* Treatise on Poisons, by R. Christison, M.D., p. 721.

† "Lancet," January 21st, 1832.

such cases tend on the whole to show that the practice is not so injurious as is commonly thought, there is an obvious reason why those instances chiefly should come under our notice in which the constitution has escaped injury, cases fatal in earlier life being more likely to be concealed.*

With regard, however, to the general effects produced on health by indulgence in this habit, we have the most conflicting testimony, and this, too, by parties who have had ample opportunities of making careful observation. On the one hand, the effects are described as being fatally injurious. Mr. Medhurst, for instance, in his "China," states that every opium-eater may calculate upon shortening his life ten years from the time he commences the practice,† and Mr. Madden, a professional authority, even alleges that it is very rare for an opium-eater at Constantinople to outlive his 30th year.‡ Statements to the same effect have been made in various works on Eastern travel, and many of these were so startling as to throw a shade of doubt on their accuracy. When "Anastasius," for instance, first made its appearance, and was exciting a great sensation, Sir Benjamin Brodie is said to have asked the author if his description of opium-eaters was drawn from his imagination, but Mr. Hope replied that he had merely written down what he had actually witnessed.¶

Mr. Taylor, in his late admirable work on poisons, states that one of the best descriptions of the effects of opium-eating is that given by Dr. Oppenheim in his account of the state of medicine in Turkey. He says, the "habitual opium-eater is readily recognised by his appearance: a total attenuation of body—a lame gait—a withered yellow countenance—a bending of the spine—and glassy deep-sunken eyes—betray him at a glance. The digestive organs are in the highest degree disturbed, the sufferer eats scarcely anything, and has hardly one evacuation in a week. His mental and bodily powers are destroyed. As the habit becomes more confirmed, his strength continues decreasing, the craving for the stimulus becomes greater, and in order to produce the desired effect the dose must be constantly augmented. It is added that opium-eaters seldom attain the age of forty if they have begun to eat it early."‖ Mr. Taylor then remarks that this description of the effects is exactly what we should expect from physiological and pathological reasoning; and he states that there is sufficient evidence to prove that the practice gives rise to prejudicial effects on the system, and tends to impair health.§

On the other hand, statements have been made by professional men who have had ample opportunities for observation, which are calculated to call in question the accuracy of the remarks made by these Eastern travellers. Dr. Irvine, for instance, in his account of the topography of Ajmeer, states that "opium, when attainable, is used by a large portion of the people, especially Rajpoots, Meenas, and Mairs. The quantity consumed by individuals is often very great. I have made on this point every inquiry, and it appears that decidedly dangerous effects to the body, from its excessive use, are very rare. The very large portion of those who use opium habitually and largely do not suffer at all in the body. On the con-

* Treatise on Poisons, by R. Christison, M.D., pp. 718 and 721.
† "Lancet," April 15, 1843.
‡ Treatise on Poisons, by R. Christison, M.D., p. 718.
¶ "Lancet," October 25, 1834.
‖ On Poisons, by A. S. Taylor, F.R.S., p. 592.
§ Ibid, p. 589.

trary, they seem really to be less liable to the ills that flesh is heir to. In very numerous instances they attain to old age of a hale nature."* Again, we are reminded by Dr. Christison that Dr. Macpherson, of the Madras Army, who had occasion to observe the effects of the parallel practice of opium-smoking in China, states that " though the habit is universal among rich and poor, we find them to be a powerful, muscular, and athletic people, and the lower orders more intelligent, and far superior in mental acquirements to those of corresponding rank in our own country."†

It is thus evident that the most extreme difference of opinion prevails among professional men on a subject of deep interest and importance, which obviously requires closer investigation and inquiry. I have therefore brought this case to the notice of the Society, with the view of directing attention more fully to the subject, and in the hope that it may elicit valuable information from some of our members, many of whom, particularly those in Gujerat, Sindh, Persia, and Turkey, are placed under most favourable circumstances for enlarging our field of knowledge on a subject which is surrounded by the most conflicting evidence, and I would venture to throw out the following questions in particular :—

1st. What has been the largest quantity of opium which any Member of the Society has known to have been daily and habitually taken?

2nd. What has been the greatest length of time during which any Member has known opium to have been habitually taken?

3rd. What have been observed by any Member to be the general effects of habitual opium-eating on the system, in reference more especially to the cerebral and assimilating functions?

4th. What has been observed to be the general effect on longevity?

5th. Are the ultimate effects of the habitual abuse of opium identical with those arising from the habitual abuse of alcohol?

6th. Has any Member of the Society known of any instance in which the confirmed and habitual use of opium has been totally refrained from, and if so, with what consequences?

No. 3.

Illustrations of Difficult Parturition. The value of Tartarized Antimony as an Agent in Obstetricy. By F. MANISTY, Esq.

Presented February 1850.

CASE No. 1.—*A protracted labor; arm presenting; second pregnancy; patient's age* 24; *operation of turning; tartarized antimony first administered; its value as an agent in Obstetricy.*—At 10 o'clock A. M. I was called to a native

* " Lancet," April 15, 1843.

† Treatise on Poisons, by R. Christison, M.D., p. 718.

woman of the Tailungee caste, about 24 years of age, in labor with her second child. Her first labor terminated naturally. At my visit I was informed she had been in labor about twenty-four hours; the liquor amnii evacuated, uterine action strong, the right hand and arm protruding externally, at which such forcible traction had been made that the os humeri was broken in pieces about two inches below the proximal extremity, and the ends of the bone projecting through the soft parts, which were much lacerated by pulling at the hand. The labia were much swollen, the passages dry and heated, pulse good, and no symptoms of exhaustion. The dry swollen state of the passages, together with the uterine action, rendered it impossible to pass the hand beyond the point of the shoulder, which filled the external passages. The catheter was introduced, and the bladder emptied. Three successive half-grain doses of tartrate of antimony were given, after which sixty drops of laudanum were given to allay the uterine action, and as soon as the uterus became in a passive state, it was ascertained, on examination, that the head was firmly impacted above the brim of the pelvis. The arm of the child was amputated at the shoulder joint, not with the view of making more room, but to prevent the uterus from being injured by the sharp point of bone, which must have returned into the uterine cavity during the operation of turning. The hand was then gently introduced, and with moderate force carried up to the feet, which were laid hold of, and by using a little *vis a fronte* were brought down to the os externum, and the delivery completed by placing the head and shoulders in the most favorable positions during their passage through the different parts of the pelvis.

Remarks.—In this case, everything was most unfavourable to the operation of turning. The liquor amnii had escaped, the parts were hot and dry, allowing no room for the introduction of the hand, and the uterine efforts continued forcible.

The action of the tartar emetic was most beneficial in relaxing and dilating the parts, and rendering the operation of turning practicable, by which means delivery was completed. All who have had experience amongst natives must have observed how badly they bear blood-letting, and on this account alone it is of importance to know with what efficacy tartarized antimony may be used in Obstetricy as a substitute for bleeding; and many cases will be met with in practice amongst Europeans also, where it may be administered with the best success, when bleeding is not practicable.

From what has already been stated, it will at once be apparent that the greatest brutality had been practised by the native attendants in this case, as no slight degree of force was required to fracture the humerus, and nearly separate the arm of the child from the body; and it is hardly necessary to remark that under such maltreatment the child was born dead, and a victim to ignorance and mismanagement.

On the second day after delivery, slight tenderness was complained of over the uterine region, accompanied with feverishness, which readily yielded to the application of leeches, aperients, and saline diaphoretics, and the patient's subsequent recovery was satisfactory and uninterrupted.

Case No. 2.—*A protracted labor, completed by craniotomy; the child a male, of disproportionate size; tartarized antimony first exhibited, and the secali cornutum.*—About 4 o'clock P. M. I was called to a native woman, of the Brahmin caste, about 25 years of age, and in labor with her third child. Her previous labors had been natural, and at the full time of utero-gestation. Her present labor had commenced about forty hours before I made my visit. The liquor amnii was

discharged early; the os uteri imperfectly dilated, and rigid; the head presented, and a puffy tumor had formed upon it. I was informed that the parturient action had been very violent, but had been flagging for the last three hours, and the pains were now very slight; the pulse a little accelerated, no headache, no fever, but great heat, dryness, and swelling of the soft parts, both internally and externally. The catheter was introduced, and a small quantity of turbid urine removed; tartrate of antimony was given to relax the soft parts, and make them more dilatable. The patient was kept under its nauseating influence for about three hours, during which time the pains were slight, and produced no effect on the further descent of the child's head, which on examination was found firmly impacted in the brim of the pelvis, leaving no room for the safe introduction of the forceps. The parts had now become more relaxed, and dilatable, and as there was no fever, and the strength seemed bearing up well, 20 grains of the secal. cornut. were given, powdered, and mixed with infusion of cinnamon, which about ten minutes after its administration brought on powerful expulsive pains. The same quantity of the ergot was given every twenty minutes for four successive doses, by which means powerful parturient pains were regularly kept up, but the only effect produced was the elongation of the puffy tumour above described, caused by additional extravasation. The passages were again becoming dry and heated, with symptoms of exhaustion, and there was a peculiar wild expression of the countenance frequently observable before the approach of convulsions; it was therefore deemed necessary to have recourse to embryotomy, as any further delay would have been attended with serious mischief. The perforator was introduced at the most accessible point, and having removed the greater part of the cerebral substance, delivery was accomplished by a purchase with the craniotomy forceps. At the end of three quarters of an hour, the placenta not having been thrown off from its attachment, and slight hæmorrhage appearing, it was removed; the uterus contracted, and the patient was made as comfortable as her situation would admit of, but she sunk on the 7th day after delivery, from abscess in the liver and ulceration of the bowels, which had been going on for four months previous to delivery, and this was accidentally discovered by the character of the discharge from the bowels during parturition; and on inquiry the true history of her case was ascertained. The body was not much emaciated, but her death was attributable to the chronic disease, and not to any uterine mischief subsequent to delivery.

Remarks.—The child in this case was of more than ordinary size, and, from its black appearance and fœtid smell, it had evidently been dead for some hours before delivery. There is every probability that the case would simply have come under the head of protracted labor, and would have come to a favourable termination by the unaided powers of the uterus, if it had been properly conducted from the first, or rather if everything had been left to nature; but instead of this, when delivery was not accomplished quickly, the most unwarrantable interference on the part of the midwives had been resorted to, such as thrusting the hand rudely through the passages to lay hold of and pull at the head, whilst the most violent pressure was kept up externally by the grasp and forcible pressure, from the hands of two or three females, all exerting their force at the same time.

The tartarized antimony had the favourable effect of rendering the soft parts lax and dilatable, and was especially useful in this case, as the patient's constitution would not justify or allow of the abstraction of blood.

The secal. cornutum was administered when the parts were brought into a favorable state for its use by the tartrate of antimony, and when it became evident that the unaided powers of the uterus could not expel the child. Its exhibition was followed by powerful bearing down efforts; but not sufficient to overcome the resistance offered at the brim of the pelvis. After waiting a reasonable time, and finding no advance made, the parts becoming dry and heated, and other unfavourable symptoms, and the child having ceased to live, the operation of embryotomy was performed, as above described. An opiate was given at bed-time, and directions given to keep the patient perfectly quiet, and as cool as the room would admit of being kept, for it was one of those wretched low rooms in the interior of a native house, where neither air nor light could penetrate. On my visit the following morning, I was informed that she had slept well at intervals, but had frequently been disturbed with her bowels; her pulse was quick and fluttering; the lochial discharge escaping in natural quantity; there was no fullness or tenderness over the region of the uterus, and the bladder had been emptied. The room was heated to an insufferable degree by earthen vessels filled with burning charcoal, and in consequence the perspiration was flowing in drops from the patient's body; therefore it may easily be conceived what mischief might be expected from such a state of things, even supposing the chronic intestino-hepatic disease had not existed. I also discovered that contrary to my orders a quantity of the "dolichos bifloris" (in Mahratta termed "oolga," ओलगा,) had been given in infusion, which is a common practice with the natives, and is said to have a stimulating action on the uterus, and to increase the lochial discharge. The heated charcoal was directed to be removed, saline diaphoretics, castor oil, and opiates were ordered, and conjees of sago and arrowroot. At my evening visit the room had the same heated feeling, and although the people positively stated that my orders had been carried out regarding the heated charcoal, I must confess I was very incredulous of their statement: the patient's body was covered with perspiration; she complained of heaviness and fullness over the region of the liver, the alvine evacuations, which had been very frequent, contained a quantity of purulent matter; pulse 120; no tenderness over the uterus, and no disturbance apparently connected with it. A full dose of morphia was given at bed-time, and the saline mixture to be continued. On the following morning the patient was found much in the same state; the motions frequent, and of the same purulent character; and in this way she lingered on till the 7th day, when death terminated her sufferings.

Case No. 3.—*A protracted labor; arm presenting; first child; patient's age* 18; *operation of perforating the thorax; turning; tartarized antimony first administered.*—At 8 o'clock A. M. I was called to a Mussulman woman in labor, in her first pregnancy, age about 18 years. Her labor had commenced about 20 hours before my visit. The liquor amnii had escaped early, the uterine efforts had been very violent, but were gradually becoming weaker during the last four hours. The hand and arm, as far as the elbow, were protruding from the os externum; the labia swollen to a great size, and presented a shining œdematous appearance, as if ready to burst; the passages were hot, dry, and unyielding; the cavity of the pelvis and the outlet contained the point of the shoulder and part of the thorax, so firmly wedged in that there was no room to introduce the hand sufficiently to discover the situation of the head; the pulse remained good, and there was no headache or fever. It was evident that the soft parts were becoming seriously injured

by long-continued pressure, which had been greatly increased by the powerful *vis a fronte* kept up by constant forcible pulling at the protruded arm. The bladder was emptied by the catheter, fomentations applied to the os externum, tartarized antimony given for two hours, in half-grain doses every half hour, to facilitate relaxation, and render the parts dilatable, after which it was ascertained, by the taxis, that the head was firmly jammed in above the brim of the pelvis, with the face turned backwards, and the occiput resting on the pubes; and it had evidently been made to occupy this position by the constant extension and forcible pulling that had been made at the protruded arm. There was no possibility of changing the position of the child, as it was firmly impacted in the pelvis, and quite immoveable. The pains had nearly abated, there was no progress, and the soft parts were already suffering from the pressure that had been kept up, therefore any longer delay would have been unjustifiable. The head was not accessible, so it was deemed necessary to perforate the thorax: the perforator was entered between the ribs, a little below the axilla, the hook passed into the cavity of the chest by the opening, and a considerable portion of its contents removed. By this means sufficient room was made for the passage of the hand, the feet were then laid hold of, and brought down, and delivery completed in the usual manner.

At the end of a quarter of an hour the placenta was thrown off and withdrawn, a bandage applied round the hypogastrium, and the patient's position made as comfortable as possible, and an opiate ordered to be given at bed-time. Next morning I found she had had a good night's rest; she complained of no pain nor tenderness, but a degree of soreness about the os externum, and burning pain on voiding her urine; lochial discharge of natural quality and quantity. Ordered a dose of castor oil. I visited her again the following morning, and found she still complained of burning pain on voiding her urine; the bowels had been moved, and everything else seemed going on satisfactorily. The burning pain complained of could not readily be accounted for, but on examination it was discovered that there were several small sloughs about the orifice of the vagina and surfaces of the labia. An emollient poultice was ordered to the parts, and a sponge directed to be placed below the meatus urinarius, when the urine was passed, so as to prevent its action on the sloughing surfaces, and alleviate the burning pain complained of; saline draughts to be given at intervals. On the fourth day the sloughs began to separate, and the patient was in every way doing well, and by a continuation of the same treatment she went on satisfactorily, therefore further comment is not necessary.

Remarks.—When first called to the above case, the liquor amnii had escaped prematurely, most likely by incautious interference; the parts were dry, hot, and rigid, firmly grasping the presenting parts, and offering such an insuperable obstacle to the introduction of the hand, that it was impossible to ascertain how the head was situated. The pulse was good, and there was no exhaustion nor fever, consequently no immediate necessity for delivery. The bladder was emptied, and tartar emetic administered, and fomentations applied to the os externum, by which means the soft parts became relaxed and dilatable, and I was then able to discover the position of the head, which was wedged in above the brim of the pelvis so firmly that any longer delay in bringing the labor to a termination would have proved highly injurious to the maternal tissues, and there was every reason to believe the child had then ceased to live. It was necessary to perforate the chest, and empty it of part of its contents, and this being done, sufficient space was al-

lowed for the passage of the hand. The feet were then laid hold of, and brought down to the os externum, and delivery completed. The relaxing and antiphlogistic agency of the tartrate of antimony was tried in this case, and its action was most favourable in advancing a dilatable state of the soft parts, and enabling me to discover the true position of the head, and although it failed in promoting the birth, still it was of essential benefit in preparing the parts for the operation that was necessary to be performed, and which was the only means left of preserving the mother's life.

Miscellaneous Observations.

The foregoing three cases are a few of the many difficult cases of labor that it has been my lot to attend amongst natives in the city of Nuggur; and in the numerous cases that I have had occasion to make use of the tartarized antimony, I have always found it most efficacious. It is an invaluable antiphlogistic agent, and without it the efforts of the accoucheur will often be either altogether foiled, or the case will come to an unfavourable termination, for he is generally called in when blood-letting is unjustifiable and impracticable, as the foregoing cases will prove; and the difficulties to be encountered in case No. 3 were of no ordinary occurrence. By the exhibition of the tartarized antimony, an opportunity is given of waiting a little in most cases, for in the interim, its power of relaxing and rendering the soft parts dilatable, and preventing congestion, is always decreasing the risk of injury to the soft tissues; and I have also found its exhibition in many cases render everything favourable to the administration of the ergot of rye, which was at first prohibited by the dry, rigid state of the parts, and thus, by means of these two agents, delivery was accomplished without manual interference, although this was not the result in Case No. 2.

In midwifery practice among natives, it is only when all means fail, and when the case is rendered hopeless, and as bad as possible by brutal violence and ignorant interference, that the aid of a European practitioner is sought for; hence he may always make up his mind to have great difficulties to encounter in every case, not only in bringing the labor to a termination, but also in the after-treatment, for it is with regret I add that most natives are so much prejudiced against coming to a hospital that I have been obliged to give my attendance at their own houses, where I have been shut up for hours in a small, hot, close room, without air or light, the patient lying on the ground, and in this position been obliged to perform the operation of turning. I once resolved to attend no one out of hospital, but so strongly are most castes prejudiced against going to hospital, that I could not get one patient in twelve to consent to go, and in consequence of a rapid succession of bad cases, I was obliged, out of humanity, to abandon my determination. I have endeavoured to reason with the native midwives, and have shown them how useless it is to persevere in certain cases, and have also pointed out to them how such presentations may be early discovered, but they will not forsake their old ways. I have even gone so far as to threaten them with criminal punishment, but all with no effect, and it is truly sad to contemplate the amount of human suffering caused by their wilful ignorance and prejudiced customs, but for which there seems no remedy, unless something in the shape of a lying-in institution could be established.

No. 4.

Remarks on the Pathology and Treatment of Orchitis. By J. R. Miller, Esq.

Presented June 1849.

It being the usual practice to consider Orchitis, or Swelled Testicle, as an inflammatory disease, of a sympathetic nature chiefly, as when occurring during the progress of gonorrhœa, or following, as it often does, any sort of irritation of the urethra, and consequently requiring to be vigorously attacked by blood-letting, general and local purgation, cold lotions, tartar emetic, blisters, &c.—in short, to be combated by the line of treatment such as would be deemed necessary in the inflammation of any other viscus, I beg to forward a couple of cases of this disease, with the view of directing attention to the success attending a narcotic plan of treatment, in opposition to the antiphlogistic one usually pursued, a method based upon the views entertained by Mr. Gay, of the Royal Free Hospital, London, and detailed by him in a paper published in the *Lancet*, Vol I. 1844, that the true pathological condition of the organ in this disease consists in a morbid sensibility of the nerves of the testes, and not depending upon an inflammatory action, according to the general acceptation of the term.

Although the action of opium in allaying a morbid sensibility of the system, especially when occasioned by hæmorrhage or protracted discharge, is not throughly understood, yet the fact is well known, and, acting upon this principle, it will, *cæteris paribus*, easily account for the action of a remedy of a similar class in the disease under consideration.

Case 1.—*Shaik Cassim, Bargeer, 3rd Troop; Mussulman, aged 23; admitted January 31st* 1849.—The right testicle is very hard and much swollen; also the groin of the same side; remains of a gonorrhœa upon him, contracted some months ago; testicle swelled only within the last week. Complains of acute pain on the slightest pressure, with a dragging sensation in the loins. Tongue covered with a thick white fur; skin hot; bowels constipated.

R. Magnes sulph. ʒj, infus. sennæ ʒiv., M. S. S.

February 1st.—To commence taking thrice daily ʒss tinct. hyoscyam.

February 4th.—Pain and swelling much subsided; testicle still hard and heavy, but can bear it being handled.

To support the testicle, and increase the henbane to 3j three times in the day.

February 6th.—Pain in the testicle gone, and it has nearly resumed its usual size and appearance.

February 9th.—Quite cured; discharged.

Case 2.—*Bhain Khan, Bargeer, 2nd Troop; Mussulman, aged 29; admitted February 10th* 1849.—Presented himself this morning with swelled testicle of the left side: does not know how it has come on; thinks it was occasioned by wearing a tight boot. The affected testicle is more than twice the size of the other; very painful on pressure; cord painful and swollen up to the abdominal ring; no gonorrhœa; is thirsty, feverish, and complains of general irritability, and loss of appetite.

To have an ordinary black dose, which is to be repeated every morning during the continuance of the fever.

To suspend the testicle, and take pulv. doveri gr. x at bed-time. Tinct. hyoscyam. 3ss ter in die.

February 12th.—Is much better in every way; swelling of the cord and testicle greatly subsided, and can stand a good amount of pressure.

Continue tinct. hyoscyam.

February 16th.—Rapidly improving.

February 17th.—Feels quite well; to rub mercurial ointment for some days upon the testicle, owing to its remaining somewhat harder and heavier than its fellow; discharged.

No. 5.

Notes on the Effects of the Bite of the Phoorsa Snake. By C. Morehead, M. D.

Presented September 1850.

In the years 1834 and 1835, while in Medical charge of the Convalescent Station on the Mahableshwur Hills, I made some observations on the effects resulting from the bite of the Phoorsa, a small snake common on the hills, and known to the natives by that name. The Phoorsa snake is about a foot in length, the tail tapers suddenly from about an inch from the end; the colour is olive brown, of different shades, variegated with white; on the back and sides there are olive brown lozenge-shaped patches; the belly is white, with brown spots, and the transverse plates under the belly and tail are single; a small isolated fang is distinct in the upper jaw.

Case 1.—About the month of January 1834, a small puppy dog was brought to me, said to have been bitten on the upper lip by a Phoorsa snake, but as the animal seemed lively and well, I thought that there might be some mistake; the snake, however, was shown to me, and the dog had been found playing with it. In a short time the lip swelled slightly, and was painful on being touched; it was rubbed with ammonia, and some was also given internally. During the course of the day, the animal appeared sufficiently lively, took food and ran about, but the swelling continued to increase, and caused much pain. On the following day, the face and neck were very much swollen, especially under the lower jaw. The animal died in the course of the day, about thirty hours from the time it had been bitten.

On dissection, the swollen face and neck were found much infiltrated with bloody serum, and in some places, especially in the neighbourhood of the bitten part, there was extravasation of blood; the larynx, trachea, and lungs were healthy; no congestion of the mucous lining; the other organs seemed healthy.

Case 2.—At 11 A. M. on the 20th March 1834, a horse-keeper in the service of Col. Lodwick was brought to me. On the middle finger of his left hand there was a small punctured wound, caused by the bite of a snake. The occurrence took

place about half an hour before I saw him. He made no complaint of pain; there was no swelling around the wound; the pulse was natural. The bitten part was excised, caustic applied, and a ligature tied round the wrist. At 3 P. M. appearance unchanged, no complaint but of pain in the hand, which was somewhat swollen. This I attributed principally to the ligature, and removed it. On the morning of the 20th he was reported to have slept well; the hand was considerably swollen, the swelling was tense, painful, and extended above the wrist; the tongue natural; he made no complaint but of the hand. Cold lotion was directed to be applied. At 1 P. M. it was observed that over the right tibia, here and there, on the right foot, and also between the fingers of the right hand, the skin had cracked, or rather had assumed an abraded appearance, and from these points fluid and florid blood oozed and trickled slowly: one of these points had existed on the previous day, but the others had only been noticed within an hour or two; the skin was natural in temperature; the hand was more swollen; pulse 64, full and firm, and he had a sense of weight in the forehead; the saliva was tinged slightly with blood; the tongue expanded, but not furred; breathing slow. About ʒx of blood were abstracted from a vein in the right arm, by which the uneasy sensation in the head was relieved, and the pulse reduced; the blood did not flow very freely, the orifice in the vein being small. At 4 P. M. I found that there was hæmorrhage from the arm in which he had been bled; it had been necessary to renew the compress twice, and three or four ounces of blood had been lost. About the right elbow joint, principally anteriorly, extending down the forearm and up the arm, there was tense, elastic, painful swelling, very similar to that of the bitten hand; the blood, dark and thin, trickled down the arm from the orifice made in the vein. It was impossible, from the swelling and hæmorrhage tendency, to stop the bleeding in the ordinary way; it was in part effected by pressure with the finger, afterwards by means of a cork compress and adhesive plaster. The pulse had become small, the skin cold; he was restless and distressed-looking, but answered questions freely when spoken to. The tongue was expanded, and its edges deeply marked with indentations from the teeth. The blood taken from the arm had not coagulated in the slightest degree; it was a dark red brown liquid.

Stimulants of brandy and ammonia were given in full doses, and frequently; he continued restless and drowsy, but was always roused when spoken to. The pulse continued barely perceptible; he complained chiefly of the pain of the swelling of the arm in which he had been bled. At 10 P. M. the swelling of the bitten hand had become much reduced, and softer; that of the opposite arm, in which he had been bled, had increased. He continued pulseless, restless, and drowsy, but answering questions when roused, till 5 A. M. of the 22nd, when the breathing became difficult, and he died at 7 A. M. There was nothing peculiar in the appearance of the body; the bitten hand was much less swollen than it had been. No examination of the body permitted after death.

Case 3.—On the 20th April 1835, at 10 A. M., a Parsee woman, resident in the Bazaar at Malcolm Peth, was bitten by a Phoorsa on the dorsum of the last phalanx of the ring finger of the right hand. I saw her half an hour afterwards; a ligature had been applied to the finger: I excised the bitten part, and applied caustic, and continued the ligature till the afternoon, when it was removed, in consequence of the pain which it occasioned. She complained once or twice of her head, and took some doses of eau de luce. There was swelling of the finger

and the hand, but to no great extent. There was constant oozing of blood from the excised part, which on the 22nd increased to a constant dropping of blood, and continued so during the night. On the 24th the bleeding continued, and the pulse was feeble; the actual cautery was used, and stopped the bleeding, which was absent on the 25th, but recurred on the 26th, and was stopped by pressure. On the 1st of May she was quite well. Ammonia was the only internal remedy used.

Case 4.—A full-sized dog, on the morning of the 24th May 1834, at 10 A. M., was bitten over the right false ribs by a large Phoorsa snake. He continued well all day, took food and water freely. In the evening slight diffused swelling about the bitten part, but the animal did not cry when struck, nor on pressure. On the morning of the 25th the dog seemed dull, and did not take his food, the swelling was slight and diffuse, and not seeming to cause pain on pressure. At 2 P. M. the sluggishness was found to have increased, and near to the animal there was some dark fœtid pitchy-looking fluid, which must have been either vomited or passed by stool. About 11 o'clock at night he was heard to howl, and probably died at midnight: he was found dead early in the morning of the 26th, having lived probably about forty hours; and more of the dark pitchy fluid was found on the ground, and as it covered the legs and tail of the animal, it seemed to have been passed by stool. The body was not at all swollen.

The body was carefully examined after death: around the bitten part there was infiltration of the subcutaneous cellular tissue, for an extent of eighteen inches in a longitudinal direction, and six in a vertical. The fibres of the tissue seemed thickened and condensed, so that the fluid did not run freely nor in quantity from the cut surfaces. Where the infiltration was greatest the thickness was about a quarter of an inch, and formed a dark red fleshy-looking substance. Towards the periphery of the infiltrated portion the colouring matter of the fluid was much less in quantity. In no situation did the infiltration pass the mesial line to the left side of the thorax. It was not an ordinary infiltrated cellular tissue, such as is seen in anasarca; the organization of the tissue seemed to have undergone a change, so that a portion macerated in water lost its dark red colour, but retained the other physical properties, its thickness and firmness.

Thorax.—The heart was empty and pale; the arterial system empty and contracted; the jugular veins contained some thin fluid blood; the lungs were much collapsed, and perfectly pale, with the exception of a few superficial red patches; when incised they were perfectly dry. I never saw lungs so devoid of anything like congestion of blood, or so absolutely without serous infiltration, or the natural secretion of the mucous tissues. The lining membrane of the trachea and bronchial tubes was perfectly pale.

Head.—The brain firm, healthy, pale, ex-sanguine.

Abdomen.—The liver healthy, but with some red serous congestion; the stomach and intestines were externally natural; there was no discoloration nor vascular congestion; they were laid open from the pharynx to the rectum. The œsophagus was natural; the stomach contained yellow fluid, mixed with food, its coats were natural. About two feet of the upper part of the small intestines contained mucous, deeply tinged with bile; descending the bowels the mucous became tinged with blood, like red currant jelly. Descending still further, this state of secretion increased in quantity, and deepened in colour. In the large intestines, extending

to the anus, there was a thiek eoating of this secretion, very fœtid, and in eolour and consistency resembling pitch. Wherever this seeretion was seraped from the lining tunic the appearance of the latter was seen natural; no discoloration, no vascularity, no alteration of condition; in every point it was a pale healthy mucous tissue. The bowels were not distended, and, take away their contents, they could not have been more healthy or natural, in colour, structure, and relations. The kidneys were healthy. The bladder was filled with healthy urine; the lining membrane presented one faint discolored patch.

Remarks.

The effect of the Phoorsa poison is elearly on the blood, nor is it very speedily indueed. The symptoms would seem to be all referable to the altered constitution of the blood, and death to take plaee slowly in the way of syncope, from the blood being no longer in its changed state an adequate stimulus of the heart. The syncope may no doubt in some eases be expedited by the hæmorrhage which is present. The swelling and cellular infiltration which take place around the wound is also more likely attributable to the altered state of the blood than to the local aetion of the poison; I think so from the time that elapses before its occurrence, and also because in the case in whieh venesection was had reeourse to it was as great in degree around the laneet wound as the original bite.

Indeed I believe that this infiltrated state of the subeutaneous and intermuscular areolar tissue is very analogous to that condition of these tissues so often present in the advaneed stages of scurvy, in which disease it is doubtless dependent on the altered constitution of the blood.

The expanded tongue, with its edges deeply indented by the teeth, is also of interest. This is a symptom which is most marked in chlorosis, another blood disease.

That the hæmorrhagic tendency is due to the altered state of the blood, need hardly be observed. Now all this differs from the descriptions which we have of the effect of snake-bites in general, such as the cobra, the rattlesnake, the English viper: in these we have more or less immediate depressant influence on the nervous system and the heart, evineed by the drowsiness, the cold skin, and thready pulse; and under these symptoms the issue may be speedily fatal. In those not so, the swelling and pain of the wound, and around it, come on early, and may cause the fatal issue by erysipelatous inflammation, and gangrene. It is only in the instance of the rattlesnake poison, but that not in all the cases quoted, that we have associated with the other phenomena those of an altered state of the blood.

The only exeeption to these statements, in addition to the Mahableshwur Phoorsa, with which I am acquainted, will be found in the second volume of the Transactions of this Society. Dr. Forbes, whose valuable life was too soon lost to seience, and to the Society, of which he was a distinguished member, in his very excellent account of the Pali disease, adverting to the worst forms of the disease, in whieh a malignant and hæmorrhagic character was well marked, states that it reminded him of the effects in two cases of snake-bite which he had witnessed while on duty at Balmeer. He observes that "this resemblance is no less curious than interesting, but as it would be out of place to enter upon any consideration of it here, I shall only premise, that although passive hæmorrhage after snake-bite may appear a new or uncommon symptom to many, as it did to myself, cases of this kind are of eonstant oeeurrenee in the South-eastern part of Marwar, and to-

wards Scinde, whenever the patient survives the receipt of the injury for some hours. The snake alluded to is from two feet to two feet and a half in length, of a dirty yellowish brown colour on the back, and a white belly without spots." He then details two cases, in one of which recovery took place, in the other death by syncope. In both, the local symptoms seemed to come on earlier, and to be more complained of than in the Phoorsa; more particularly there was more of collapse at the commencement. In neither was there oozing of blood from the cutaneous surface; in both the hæmorrhage was chiefly from the nose, gums, kidney or bladder, as in both there was bloody urine.

As regards the treatment of the Phoorsa bite, the propriety of excision may, I think, be questioned, from the inconvenience of the subsequent hæmorrhage from the wound. In regard to venesection, it is hardly necessary to say that it must not be thought of. The case in which it was used by myself was no doubt very badly treated: an error in measure due to the solidism which was the fashion in pathology, and the excessive blood-letting which was the fashion in practice in those days.

The indication is to better the condition of the blood by agencies which counteract the influence of the poison, if such exist, and such can only be discovered by empirical trials. Mr. Assist. Apothecary Bryce has treated two cases with intelligence and success, by the use of iodine, and it would be right to repeat these experiments in future cases, supposing that we have no agency calculated to counteract the influence of the poison. The indication then must be by nutriment, by general tonics, and stimulants, to bring the blood back to a healthy state by return of the normal processes of assimilation and excretion. But there is still another indication: we must avoid the use of all agencies which favour the occurrence of a dissolved and vitiated state of the blood, as mercury and the alkalies; and though as a diffusible stimulant we may use ammonia in moderation, yet I should doubt the propriety of its continued use in cases of Phoorsa bite. The observation is as old as Huxham, if not older, that the continued use of ammonia brings about a dissolved state of the blood.

No. 6.

Three Cases of Snake-Bite (Phoorsa).

Presented by the Medical Board.

Case 1.—Rama, a wood-cutter, aged about 28, was bitten at 9 o'clock on the morning of the 5th August, while passing through the jungle, by a snake, on the left ankle, which is called by the natives "Foolcha," common to this place in the monsoon, and said to be venomous. Says that he felt nothing but the wound for the first five hours, after which he began feeling sick. Wound is bleeding slightly.

℞. Pil. rhei comp., gr. x. Pil. hydrarg. gr. v m, fit pil. ij, to be taken directly. Apply argenti nitras to wound, and bandage.

August 6th.—Feels very unwell this morning, and did not sleep well; bowels freely moved; complains of pains all over the body, and burning sensation about the scrobiculus cordis; wound bleeding profusely.

Apply argenti nitras, and keep acetate of lead lotion continually on. ℞. Tinct. morphia m, xx sod. sesquicarb. gr. x, aqua ʒiss m, three times a day.

Vesp.—Says when he went to stool he observed blood come away from him, and in vomiting saw the same; tongue quite red, with blood oozing from the sides of it; feels thirsty, and complains of loss of appetite.

℞. Calomel gr. x, opii gr. iiss m, fit pil. ij, to be taken directly.

August 7th.—Was vomited and purged, blood seen in both evacuations; there is a semi-bloody fluid oozing out of the perspiratory ducts of the body; the glands of the neck, arms, and groin are much enlarged, and painful to the touch; wound still bleeding plentifully; can retain nothing on his stomach; pulse about 90, very weak.

Continue caustic and lotion to the wound. ℞. Iodine gr. iv, pot. iodid. ʒij, infus. calumbæ ℥xvi, m, ʒi, to be given every four hours regularly.

Vesp.—Bleeding from tongue and body more. Continue.

August 8th.—Very much the same.

Continue caustic and lotion to wound, and decrease the time of medicine to every three hours.

Vesp.—Complains of giddiness, otherwise much the same, he says, but the bloody discharge from the perspiratory ducts is less, and the tongue looks much better; wound bleeding still, but somewhat less.

Apply Tinct. iodinii comp. to the wound. Continue medicine every four hours.

August 9th.—Feels much better this morning; tongue pretty clean; discharge from the ducts scarcely perceptible; glands decreasing in size; wound bleeding, but slightly; still complains of much giddiness.

Omit mixture. Continue tinct. iodine to the foot.

Vesp.—Idem. Continue medicine to foot.

August 10th.—There is a tendency to the tongue and wound bleeding again; feels pretty well.

Repeat mixture ʒi every four hours. Continue medicine to foot.

August 11th.—There is great improvement this morning. The wound and tongue look clean; no hæmorrhage from the perspiratory ducts.

Continue medicine. Simple dressing to wound.

August 12th.—Is weak, and complains of want of appetite.

Omit mixture. ℞. Infus. creat. ʒii and sulph. aroma. x. m, three times a day.

August 14th.—Convalescent. No medicine.

August 18th.—Well; gone home.

Case 2.—Pandoo, aged about 30 years, a hamaul in the employment of Mr. Frere, while going out with the palanquin on the night of the 15th March, trod on a snake, which turned and bit him on the great toe of the right foot. Though he saw the snake, he cannot say what kind it was. On coming home Mr. Frere cut the wound, to cause it to bleed, and got it fomented with hot water after.

March 16th.—This morning he says there is no pain in the wound, but since early this morning it has begun bleeding very freely; bowels moved; tongue clean; pulse natural.

R. Haustus purgans ℥iiss directly. Touch the wound with caustic, and foment it frequently during the day.

R. Calomel gr. iv, opii gr. iss m, fit pil. ij, at bed-time.

March 17*th*.—This morning he complains of pain in the left arm, which is swollen; the wound is painful to the touch; tongue and gums bleeding.

Repeat caustic and fomentation. R. Iodine gr. iv, potass iodid. ℥ij, infus. calumbæ ℥xvj, ℥j to be given every four hours.

March 18*th*.—The mouth keeps bleeding, and so does the wound; arm very painful; bowels moved; pulse natural.

Continue caustic and fomentation. Continue the iodine mixture.

March 19*th*.—Tongue and month not bleeding; wound is much better, but still bleeds a little; the inflammation of the arm subsiding.

Continue remedies.

March 20*th*.—Tongue and mouth clean; wound also healing; hæmorrhage completely stopped; arm nearly well; complains of giddiness.

Omit iodine mixture. Continue caustic and fomentation.

March 21*st*.—Idem. Omit fomentation and caustic.

March 24*th*.—Walks about with comfort. Convalescent.

March 27*th*.—Well.

Case 3.—Essoo Caddum, aged 46 years, a Sepoy in the 4th Company Native Veteran Battalion, was admitted on the morning of the 18th March. He stated that being absent from camp on leave, and travelling to his native village, on Sunday night last, 16th instant, he was bitten by a snake on the road, and that in consequence of feeling unwell, and unable to walk, he returned to camp. On admission the symptoms were—foot and ankle considerably swollen and painful, but no urgent symptoms present, and no mark of any bite could be detected. The parts were rubbed with liniment. ammoniæ, and spirit. ammoniæ comp. prescribed internally, and also a dose of castor oil.

About 11 o'clock this forenoon passed a large quantity of bloody urine, and has continued to do so at intervals all day, so that in all he has passed above five pints; he is now much exhausted, and covered with a profuse perspiration; pulse very weak, and he is restless and anxious.

R. Ammon. subcarb. gr. vi, sp. vini Gallici (brandy) ℥ss; aquæ puræ ℥j, m. For a draught—to be repeated at intervals when necessary.

10 P. M.—Has rallied a little, and passed no more urine; skin now natural, and pulse weak, but distinct; is still very weak. Stimulants to be continued during the night, when necessary.

R. Tinct. ferri muriat. m, x, aquæ puræ ℥ss m. For a draught, every two hours.

March 19*th*.—Passed about eight ounces of bloody urine during the night; without the use of stimulants he becomes very low; pulse at present weak; skin warm; complains of pain in the region of the kidneys; bowels not moved since admission; tongue pale and furred; œdema of foot and leg, as far as the knee joint.

Warm opiate; fomentation to the foot and leg. Omit medicine.

R. Ob. terebinth. rectif. m, xx, mucilag. acaciæ, aqua menth. piperit. aa ℥ss m. For a draught, every three hours.

Noon.—Has taken a purgative draught, but his bowels are not moved as yet; appears a little better. Continue medicine.

Vesp.—Appears much better since he took the turpentine draught, but about 1 o'clock P. M., as he was very low, a draught of ammonia and brandy was prescribed. Skin now warm, and pulse soft and better; bowels not moved; still some pains in his loins, and the foot is much swollen and painful, and there is pain also in the bladder, but no distension of that organ.

Warm fomentations with opium to the loins and foot, and also to the pubes. Continue medicine.

March 20th.—Passed four pints of urine during the night, mixed with blood, and smelling of turpentine. Since 5 o'clock this morning has become very low, pulse now weak; breathing difficult; bowels moved only once after admission. Once had stimulating draughts as before.

Noon.—Urine rather better coloured, but he is sinking.

Died about 2 o'clock P. M.; no post mortem inspection allowed.

The urine throughout was very dark coloured (almost black), mixed with venous blood, but there was no coagulum whatever on the urine being allowed to stand a few hours. Great prostration of strength, and occasional profuse perspiration were apparent from the first appearance of the bloody urine. The Sepoy had formerly enjoyed good health, and is reported to have been a temperate man, and, excepting the supposed bite of a snake, nothing had occured up to the time of his illness to interrupt his health.

Fatal cases of idiopathic hœmaturia are so rare that I cannot account for this case, unless caused, as reported, by the bite of a snake. Much œdema of the foot and leg, as high as the knee joint, was apparent during the disease, but owing to the patient being very dark coloured, and the skin about the foot and ankle very thick, no wound could be detected, neither could any excision of the part have been of any benefit at so late a period after he was admitted into hospital.

No. 7.

Post-mortem Examinations in two Cases of Dysentery, presenting unusual Morbid Appearances. By M. Stovell, Esq.

Presented February 1851.

Case 1.—S. B., widow, 38 years of age, eight years resident in India, of somewhat intemperate habits, and the occasional subject of delirium tremens, was admitted into the European General Hospital on the 10th December 1849. She had just arrived from Mahableshwur, where she had suffered from dysentery, and it was with this disease that she was admitted. The symptoms, however, were by no means urgent, and she improved for a time, the liver acting properly, her bowels becoming regular, and her stools almost natural. Still she did not recover any strength, and after a time her bowels again became relaxed, her motions, however, being always feculent, generally consistent, and latterly quite formed. She took

medicines according to the varying indications from day to day. On January 12th I find the following statement in the diary of her case, which was kept by myself: "Does not seem to improve; bowels moved two or three times in the twenty-four hours; has occasional irritability of stomach, amounting even sometimes to vomiting; tongue moist and red; pulse nearly 100, and without much power." On the 28th—"Bowels quite regular, stools natural; stomach less irritable; pulse weak." On February 3rd—"Bowels quite regular, but she does not gain strength, and her pulse is 110, small and weak." After various slight alterations in the state of her bowels, I find on the 24th—"Is not improving; is becoming weaker day by day, pulse varying from 110 to 120, small and weak; has no appetite; stomach much less irritable; bowels slightly relaxed again." On the 26th—"Complaining of some degree of pain in the right hypochondrium, where there is evident fulness, from enlargement of the liver; pulse 120, weak; bowels in good order; stools quite natural; greatly reduced in strength, and much emaciated." From this time she gradually sunk, and died on the 3rd instant.

Autopsy fifteen hours after death.—Chest.—Viscera healthy.

Abdomen.—On laying open the cavity of the abdomen, I found adhesion between the peritoneal covering of a small portion of the anterior surface of the descending colon, about four inches above its termination, and the peritoneal lining of the abdominal parietes in front of it. On separating this adhesion, I found a circular patch of ulceration, which had extended through all the coats of the colon, about the size of a rupee. Adhesive lymph had been thrown out, connecting the two opposite surfaces of the peritoneum immediately surrounding this circular patch, and forming in fact a kind of wall. The ulcerative process had extended through a portion of the opposite surface of the peritoneal lining of the abdominal parietes, into the muscular structure itself, a portion of which, to the extent of a rupee in size and shape, was laid bare. The wall of adhesive lymph had effectually prevented the escape of fœcal matter into the cavity of the peritoneum. The descending colon, throughout its whole course, was somewhat contracted, and its coats slightly thickened. Its mucous lining had a few ulcerated spots here and there, and the isolated follicles were greatly enlarged, standing out very prominent, and almost of a button-like appearance. The liver was enlarged, but not to any great extent. The other viscera healthy.

Case 2.—M. W., 12 years of age, born in India, of European parents; a weak, delicate, emaciated-looking girl, was admitted into the European General Hospital on the 25th ultimo, stating that her bowels had been greatly relaxed for the preceding nine or ten days. There was no urgency in her symptoms on admission, no fullness in the abdomen, and no pain on pressure; there was a feeling of uneasiness, but not amounting to pain. She was admitted in the morning, and during that day her bowels were moved twice, the stools being feculent, brown-coloured, and tinged with blood. She took small doses of calomel, opium, and ipecacuan. During the following night she passed four or five motions, consisting of dark-coloured fluid, mixed with blood, without the slightest trace of feculent matter; there was no tenderness of the abdomen on pressure. The following day the motions were numerous, and of the same description as before, but with a distinct trace of feculent matter; her stomach was irritable, and, attributing this to the use of the ipecacuan, I continued the calomel and opium without it; the abdomen remained

quite flaccid, and there was no local pain. On the 2nd instant her motions were copious, and for the first time looked just like the rincings of beef, such as we see in the worst forms of dysentery, and from that day there was never the least trace of bile; her stomach continued irritable, notwithstanding the omission of the ipecacuan, and her pulse now began to be rapid, weak, and small, but there was no local uneasiness. From this time no change took place in the character of her stools, and she gradually sunk, and died on the 5th instant.

Autopsy seven hours after death.—Chest.—Viscera healthy.

Abdomen.—On laying open the cavity of the abdomen, the whole of the viscera presented, at first sight, a perfectly normal appearance. The entire peritoneal surface seemed particularly healthy, and there was no apparent distention of any portion of the intestines; the liver was perfectly normal in size and structure, but the gall-bladder was considerably distended. On separating the intestines, a little previous to removing them for examination, the cocum caput coli appeared much larger than natural, and on close examination I found a partial invagination, formed by five or six inches of the extremity of the ileum being firmly impacted in the cœcum, but without the slightest trace of inflammatory action. A band of that portion of the peritoneum which usually passes in front of the cœcum was binding it down in the iliac fossa. It required some little force to withdraw the ileum from the cœcum, and the appearance, I would particularly remark, was totally different to that which is occasionally presented by an inch or so of the extremity of the ileum sinking, as it were, into the cœcum, where the former terminates in the latter at a nearer approach to a right angle than is usually the case. On withdrawing the ileum, and laying open the cœcum, I found nearly the whole of the mucous lining, at its cul-de-sac extremity, in a state of sphacelation, as if the unusual tightness of the band of peritoneum fixing the cœcum in the iliac fossa, and the abnormal pressure caused by the partial invagination, had together produced a degree of strangulation. The mucous membrane of the remainder of the large intestines was dotted with small spots of ulceration here and there; the small intestines were healthy, the coats of the lower portion of the ileum, however, being somewhat thickened, and its calibre slightly contracted.

No. 8.

Case of Hepatic Abscess in a Boy ten years of Age, treated by External Incision. By H. Miller, Esq., M. D.

Presented November 1850.

Hepatic Abscess, although a frequent result in this country of inflammatory disease in the adult, is not, so far as I am aware, often met with in children; and as this case is, in this respect, one of interest, I have the pleasure to submit it to the Medical and Physical Society.

On the 20th July 1850 I was asked to see Dadabhoy Nourowjee, a Parsee Boy aged ten years, residing in Sonapoor. His father states "that the boy enjoyed good health till about twenty-four days ago, when he complained of a pain in his right side, accompanied by continual fever. The part was swollen, and a native doctor who was employed applied leeches, and gave him much medicine. The fever has however continued, and the swelling very much increased."

The boy was lying on his back, with lower extremities drawn up, very much emaciated; skin hot and dry; pulse 120; breathing a little accelerated; tongue white, and covered in the centre with a thick coating, tip and edges red; gums prominent and spongy, but no mercurial fœtor; complains of thirst; bowels opened to-day by medicine; urine scanty, and high coloured; abdomen collapsed, and the liver much enlarged; fluctuation very distinct over the anterior surface of the right lobe; the intercostal spaces between the false ribs full, and fluctuation perceptible there also. The tumor, however, more prominent, and pointing about half an inch anterior to the tenth rib, towards the umbilicus: there the skin is red, tender, and fluctuation is most distinct. The lungs are healthy, and the case a hopeful one for operation. Explained this to the parents; informed them of the necessity to open the abscess, and also of the risk attending it.

21*st July*.—Having been requested to operate, found the boy much in the same state as yesterday: pulse 120, and weak; skin a little moist; bowels have acted this morning; the most prominent part of the tumour a little softer. Administered about an ounce of port wine in a little water, and with a common scalpel made an incision in an oblique direction, forming an angle with the ribs, to the extent of about an inch and a half, the centre of which cut into the abscess, but not sufficiently to give free vent to the matter, which was thick and ropy; introduced the point of the scalpel, and enlarged the opening, and gave free exit to about a pint of pus. Very little pressure was made on the parts, only sufficient to give support. Introduced a bit of oiled lint, and the probe passed five inches into the abscess; a poultice of bread and warm water, to be frequently changed, a compress over the abdomen, and a moderately tight bandage, applied. As his pulse was very weak, administered half an ounce more wine with water, which in a few minutes he vomited. Complains of pain in the parts, and is very restless and irritable; pulse not increased in frequency. To have mouthfuls of warm sago conjee with a little wine in it occasionally.

4 P. M.—Has slept a little; pulse 124; skin hot and dry; has had one motion of his bowels, and passed water, both of natural appearance; has great reluctance to take the conjee and wine, and calls out for solid food; says he is very hungry. Removed the bandage, and took away several ounces more pus. Continue the hot poultice, and give chicken tea, thickened with sago.

7 P. M.—Continues in the same state; the pulse a little fuller and softer.

22*nd July*.—Has slept very well. Pulse 112; tongue cleaner; thirstless, asking for bread; bowels opened, and has passed water of a dark colour. The swelling of the side has very much diminished; very little discharge on the poultice, but the lint being removed, about three ounces came away, the latter part of it a little bloody. To have chicken soup and bread, and a little wine in sago occasionally.

5 P. M.—Improving. Pulse 108; bowels again moved; took some bread and soup, but complains that his father eat the chicken, and gave him only the water! One ounce more pus evacuated. Continue the poultice.

23*rd July*.—Has slept very well. Pulse 100; tongue softer, and cleaning along the sides; has a great desire for food *(gosh)*. An ounce and a half of pus this morning, mostly bloody, watery, and unhealthy-looking. To have mutton soup and bread, and half an ounce of port wine three times a day.

24*th July*.—Continues to improve. Pulse 96. About an ounce of matter discharged to-day. Bowels moved by castor oil; secretions healthy.

27*th July*.—Continues to improve. The wound filling up; the probe now enters only about three inches, and the lint used every second day. Increase the wine to an ounce thrice a day, and give nourishment freely.

29*th July*.—The wound closing rapidly; very little matter from it to-day. Pulse 80; tongue clean; bowels regular; countenance still pale, and bloodless. R. syr. iodid. ferri ʒi m xii, thrice a day in water.

31*st July*.—Has had some fever to-day; bowels not moved. Pulse 100; skin hot. Omit the syr. iodid. ferri, and give an ounce of castor oil immediately.

1*st August*.—The oil acted well; skin cooler than yesterday, but still hot, and the edges of the wound swollen and tender. The lint had been left out for two days, and there has been little or no discharge from the wound. Re-inserted the lint, and applied a large hot poultice. Limit his diet to milk and bread, and reduce the wine to half an ounce twice a day.

5*th August*.—Healthy pus flowing freely, and the pulse down again to 80; doing well. Continue.

17*th August*.—The wound still open, and a little pus coming from it daily. The probe passes an inch and a half, in a direction upwards and backwards, towards the centre of the liver; secretions healthy; appetite good, and gaining flesh. Allowed to walk about the house, and take his usual diet in moderate quantity.

25*th August*.—Wound closed, and no tenderness over the spot. The edge of the liver is however thickened, and hard under the cicatrice.

20*th September*.—Saw the boy to-day. The swelling has nearly disappeared, and he is perfectly well.

No. 9.

Cases of Hydrophobia treated in the Jamsetjee Jejeebhoy Hospital. By J. Peet, Esq.

Presented November 1851.

Case 1.—On the 8th August, about 8 o'clock in the morning, a coolie, named Woosa Buckoo, aged 22 years, was brought to the hospital by his friends: they stated that four months previously he had been bitten on the calf of the left leg by a dog, but they were unable to say whether it was rabid or not. The wound healed, and left two small cicatrices, which were visible on his admission. Four days before being brought to hospital he was attacked with what appeared to be

fever, and which continued without intermission until the preceding evening, when he became excited and restless, and was unable to swallow any fluid. On admission, he was agitated, excited, and frequently convulsed. His face was anxious, and there was a constant flow of thick viscid saliva from the corners of the mouth; skin cold and clammy; pulse not perceptible. The least noise, or disturbance of any kind, or a draught of air, greatly aggravated his sufferings. He was unable to articulate; by signs he begged his friends not to speak or move. A dose of morphia was given to him, which he swallowed with much difficulty.

He died three hours after admission.

Case 2.—A Muslman boy, 4 years of age, was admitted on the 17th October, at 2 o'clock in the afternoon. On the preceding evening he had shewn a dread of fluids, and was unusually excited and strange in his manner. On admission his face was haggard and anxious, and expressive of alarm: touching the skin, or the least attempt to change his position, brought on violent spasms of the muscles of deglutition and respiration; his lips were covered with a thick tenacious saliva, which was coughed up with much difficulty and distress. Whilst expectorating into a chatee, he noticed a little water accidentally left in it: the sight of this created great suffering, and it was with difficulty he could be kept on his cot. An attempt to swallow a pill of the muriate of morphia brought on a violent paroxysm; skin cool and moist; pulse feeble and frequent; tongue moist, and coated white. On the left cheek, a little below the eye, there was a small superficial abraded surface, occasioned, it was said, by his having scratched the cicatrix of a former wound. This boy had been brought to the hospital about a month previously, with several wounds on the left side of the face, caused by the bite of a dog. They were irritable, with a good deal of surrounding swelling, some irritant application having been used; they healed in greater part in about eight days, under the application of wetted lint, and he was removed from the hospital by his friends. From this time he was not seen until his re-admission, and no very consistent account of the manner in which the symptoms come on could be obtained. A dose of muriate of morphia was ordered every two hours. After taking two doses he became more quiet, and seemed disposed to sleep, but the pulse became more feeble. He died quietly, about 5 o'clock.

Case 3.—Ramroo, a Hindoo ghorrawallah, just arrived from Aurungabad, age 30, was admitted on the 23rd October, at 8 o'clock in the morning. He came by himself, and said that he was suffering from giddiness, and inability to swallow fluid: he described a sort of catching of the breath as following every attempt to drink. When asked if he had ever been bitten by a dog, he held up the ring finger of the left hand, and showed a small cicatrix at the inner side, near the nail, and said a dog had bitten him there about two months and a half before. He did not know whether the dog was rabid, but believed it had been killed by his master, for what reason he was unable to say: some caustic application seemed to have been applied to the wound soon after it was received. The only symptoms present on admission, in addition to his own description of his sensations, were pain, extending up the forearm and arm, towards the shoulder, and a wild expression of face; the pulse was quick; skin cool. He seemed rational; there was no swelling nor redness about the cicatrix, but when his attention was drawn to the finger, he squeezed it, and said it felt painful.

As doubt was entertained of the nature of the disease, some water was given to him; he took the vessel from the ground without any reluctance, and greedily attempted to swallow a mouthful, but he could not succeed, though the attempt did not seem to cause him much suffering. A dose of calomel and jalap was administered.

In the evening he was excited, talking incoherently, and disposed to be violent: there were no paroxysms of spasms, and he had taken conjee freely during the day, without difficulty.

On the 24th he was in much the same state as in the evening of the day before. During the day he continued incoherent and violent, but without any convulsive attacks; the pulse was feeble. In the course of the night he seemed to suffer more, and on the morning of the 25th, paroxysms of spasms were observed at intervals, though neither frequent nor severe. He was now nearly unable to swallow, and the mention of fluids excited slight spasms: he did not seem to care about draughts of air, nor about people talking or moving near him. A quantity of thick saliva was discharged from the mouth, but without occasioning much distress; he lay on his bed, and made no attempt to get up; he occasionally took a little conjee, and, though it was swallowed with difficulty, there was not much suffering occasioned by deglutition. Camphor mixture, with tincture of hemp, was given occasionally, and swallowed without much distress, but with great difficulty. He remained in the same position on the back during the day and night. On the morning of the 26th the skin was coldish; pulse very feeble; he was quiet, and still lying on his bed; a large quantity of saliva was continually ejected from the mouth, but without much trouble; there was constant muttering delirium. He died about 10 o'clock in the morning.

No. 10.

Cases of Hydrophobia, with Remarks on the recent prevalence of the Disease in Bombay. By C. Morehead, M. D.

Presented August 1849.

Case 1.—Mussoojee Govinda, Maratta, aged 50, was admitted into the Jamsetjee Jejeebhoy Hospital on the 28th August 1849, at 5 A. M. He had been bitten on the calf of the left leg two months before, by a dog, believed to be rabid. The wound healed, and he remained well till two days before admission, when he suffered from fever; and the day before admission, at noon, he became excited and anxious. On admission, there was constant hawcking and spitting of frothy mucus, with a frequent ringing scream, and these symptoms were increased in paroxysms from time to time. He seemed anxious and distressed, and somewhat delirious, and maintained a sitting posture, grasping the tapes of the cot. The pulse was very feeble. 3j of chloroform was placed on a sponge, and slowly brought near to the

face : it was inhaled, with apparently partial relief; it was repeated every half hour ; in all 3x was used. He died at 2 P. M., nine hours after admission.

CASE 2.—Succaram Bappoo, aged 28, a Bundari, was admitted into the Jamsetjee Jejeebhoy Hospital on the 2nd September 1849, at half past 4 P. M. Two months before he was bitten on the right leg by a dog, supposed to be rabid. Some native remedies were used, and the wound had not completely cicatrized, but it was granulating and healthy. The occurrence took place at Girgaum, and the dog was the property of a Parsee. He continued at his occupation as a day-labourer till four days before a dmission, when he began to complain of pain about the umbilicus, giddiness, and sudden starting. He continucd, however, to take his food, and to drink water, till the day of admission. He was brought to the hospital exposed to the rain, and all his sufferings became aggravated : he was agitated and alarmed, and constantly talking incoherently, and in a supplicating manner. He lay on the abdomen, hawcking, and at times making a barking sound, but there was no great spitting of frothy mucus ; the attempt to swallow fluid, or a current of cold air from opening the window, or the approach of the sponge with chloroform to the face, all excited violent general spasms, of short duration, but which seemed to cause much distress. The attempts to give the chloroform were discontinued. The pulse was very feeble on admission, and by degrees became more so, and shortly before his death, at 8 P. M., four hours after admission, was imperceptible.

These two cases, with two narrated by Dr. Peet in the Appendix to No. IX. of thc Society's Transactions, make four cases of hydrophobia received into the Jamsetjee Jejeebhoy Hospital from the 11th September 1848 to the 2nd September 1849. During the same period six other individuals have applied for relief, shortly after having been bitten by dogs reputed rabid ; of the issue of these cases nothing is as yet known. Moreover, application was made at the dispensary of the hospital for medicines for a person in the neighbourhood, said to be dying of hydrophobia, and several other instances of individuals bitten by reputed rabid dogs have during the past year also come to my knowledge.

During the seven preceding years, from October 1841 to September 1848, only one case of hydrophobia was received into the Native General and Jamsetjee Jejeebhoy Hospitals : during the six years and a half from July 1838 to November 1844, that I was attached to the European General Hospital, one case of hydrophobia occurred.

This comparison, then, of the occurrence of hydrophobia in the past year, with that of the ten preceding ones, during which I was also attached to one or other of the general hospitals in this place, shows a very striking increase of this fearful evil during the past year, and would seem to suggest the inference that there has of late been some relaxation in the enforcement of those preventive measures which are recognized and followed by all civilized communities.

No. 11.

Memoranda regarding the late Cholera Infirmary in Bombay, and the Treatment pursued in it.

Presented by the Medical Board.

I.—*Report on the Cholera Infirmary.* By A. LARKWORTHY, Esq.

Assistant Surgeon Mosgrove having been unable to continue his attendance at the Cholera Infirmary, the Committee of Management requested that I would take charge of, and superintend the same; and I, having applied to the Medical Board to be allowed the use of the same Medical subordinates that had been granted to him, the Board was pleased to comply with my request; and, in No. 1768 of 1849, that whilst I continued in charge of the Cholera Infirmary, that I should keep and send into the Board on every Monday morning the result of all cases treated in the Infirmary; which I have done in the Forms supplied by the Board. I was also requested "at a future time to favor them with the general result of my observations on the efficacy of the plan of treatment now followed in the Cholera Infirmary," which I now beg leave to do.

2. The plan of treatment followed in every case has been as nearly as possible that recommended by Assistant Surgeon Mosgrove, and fortunately for me I have never been without at least one of the native Hospital Assistants formerly employed under him, thereby enabling me to follow his plan of treatment with a greater degree of precision than I would otherwise perhaps have been enabled to have done.

3. During the time that I have been in charge of the Cholera Infirmary, there have been

Admissions, 82. { Of this number } { 52 have been discharged; / 30 have died; }

but the real number of deaths ought not to be considered so great as it might at first sight appear to be, as I will endeavour to make apparent.

4. Every patient admitted into the Infirmary, in whatever state he might have been, has been included in the Register, but I would deduct from the gross number of deaths those that died so immediately on their admission as not to be able to receive any treatment whatever, as was the case with the four numbers 6, 40, 68, and 75.

5. This is not the time or place to enter into any peculiar views that I or any other person may entertain as to the nature or cause of cholera. I was put in charge of the Infirmary to further test, follow out, and report on a certain and specific plan of treatment, for which cause also the Infirmary had been instituted, and to which plan the exhibition of opium is so peculiarly inimical that I would also exclude from the general number of deaths all those that were known to have taken opium in any shape prior to their admission into the Infirmary, as was the case with the six numbers 59, 68, 75, 77, 80, and 82: it is more than probable that some of the former numbers had also taken this drug, but the fact was not inquired into at the period of their admission. Admitting these six numbers also, the state of the deaths will then be:

General number of deaths, 30; { 4 without any treatment; 6 after taking opium; 20 under treatment.

We shall thus have a general statement of—

Cases 72..... { 52 cured; 20 died;

having discarded the ten cases that either received no treatment at all, or had received it after having been previously treated with opium, prior to their admission into the Infirmary.

6. But even from this number of deaths, viz. 20 out of 72, a deduction might fairly be further made, for I attribute the number of deaths among the early patients very much to the number that was then admitted being too great to allow them to be properly cared for, for you will observe that on the 2nd, 3rd, and 4th of December, the number admitted is no less than 38, of whom 24 were in a state of collapse; and each patient on admission requiring at least four attendants constantly, until reaction has been produced, will show the impossibility of their having been attended to as under more favourable circumstances they might have been, and consequently a chance lost of some few of them having been saved,—this at least is my conviction. Now the case will stand thus, without any deduction on this last clause:—

Cases treated in a state of collapse, 41; { of which number { 21 were cured; 20 died;

giving a favourable result of more than 52 per cent. in the very worst of cases, no case having been considered as one of collapse in which the slightest pulse was discernible at the wrist, however weak; and 52 cures out of 72 cases on the general number being more than 72 per cent.

7. And now I would draw particular attention to a most important fact, that not one case that was admitted into the Infirmary with a perceptible pulse died, or even went into the state of collapse. Out of

Cases admitted, 82, { 51 were admitted in a state of collapse; 31 were admitted with a perceptible pulse;

and these latter all recovered, many of them with astonishing rapidity, some of them having left the Infirmary a few hours after their admission, apparently as well as they ever had been, with the exception of a little weakness.

8. The same may be said of some of the cases of collapse that recovered: the rapidity with which they did so surprised me, for there not being the lingering effects of any narcotic medicine, such as opium, &c. to overcome, when fairly out of the state of collapse, they were well; and this point I consider of the utmost importance as regards the plan of treatment followed, being so contrary to what is usually the case after the successful issue of patients treated according to the usual plan. It is true that many cases that had taken opium previously to their admission into the Infirmary recovered, but their recovery was not generally so rapid or satisfactory as those that were treated without having previously any remedies, it having been much more difficult to procure copious vomiting, so necessary to reaction, or to overcome afterwards the semi-comatose state produced by the exhibition of narcotics.

9. Only three cases of cholera in the first stage of the disease were seen by me at the Infirmary, viz. Nos. 38, 39, and 46; they were well-defined cases, and were all contracted in the Infirmary: two of them were hamauls, whose duty it was to at-

tend on the patients, the third a Mussulman girl, who was seized with the disease whilst in attendance on her mother, who was at the time a patient in the Infirmary; all three recovered.

10. And now, before I conclude, I would draw the attention of the Board to the general condition of the people who have been admitted into the Infirmary as being of the lowest, the poorest, and the most destitute of our population, a considerable number of them having no home or habitation in Bombay, many of them having been picked up by the police peons on the roads or bunders; if dying having to be buried by the police authorities, or, if cured of cholera, and left, as is often the case, in a weakly state, having to be sent to the Dhurumsalla for future care and nourishment, and consequently of a class difficult of comparison with any other given number of cholera patients that I am acquainted with, except, perhaps, those admitted under similar circumstances into the Jamsetjee Jejeebhoy Hospital.

11. Taking all the foregoing circumstances into consideration, I have no hesitation in saying that I believe the plan of treatment recommended by Assistant Surgeon Mosgrove to be the most efficacious that has come under my observation; simple, but requiring great and immediate assiduity, recovering a greater number and more advanced cases of collapse than I have before been witness to, and apparently certain of curing all cases that have not reached that state, however nearly approximating to it; and in this opinion I think that I am fully borne out by my analysis of the Register I have had the honor of sending into the Medical Board.

II.—*Letter from* Dr. MOREHEAD, *Surgeon of the Jamsetjee Jejeebhoy Hospital, to the address of the Superintending Surgeon.*

I have the honor to acknowledge the receipt of your letter No. 1, of this day's date, requesting me to state, for your information, any opinion that I may have formed of the system of treatment of cholera followed in the Cholera Infirmary.

2. During the month of December I availed myself freely of Dr. Larkworthy's kind permission, and visited the institution almost daily, and on some occasions twice in the day; and I feel assured that I shall best advance the important object which Drs. Mosgrove and Larkworthy have at heart by stating, without reserve, the conclusions to which I have been led by observing the practice in the Cholera Infirmary, and a similar system of treatment followed in 11 of the 161 cholera patients who have been received into the Jamsetjee Jejeebhoy Hospital since the 17th of August last.

3. The treatment, as explained to me by the assistants in the Infirmary, consisted of, on the patient's admission, the administration of three or four pints of cold water; after the free vomiting caused by the water had ceased, one or two ten grain doses of calomel were given, with an interval of four hours between the doses, when two were exhibited; ammonia was also given more or less frequently, according to the state of collapse. Three or four persons, either the friends of the patient or the attendants in the Infirmary, sat upon the bed, and while the state of collapse continued, assiduously applied heat by means of hot bricks moved about over the trunk and extremities, and outside of the blanket with which the patient was carefully covered. After the first copious draughts of water had been taken and rejected,

then iced water was given in smaller quantities, according to the desire of the patient, and after a time sago with wine was occasionally given. No part of the treatment seemed to be directed towards checking the serous purging. It was allowed to go on till it stopped in the natural course of the disease.

4. I was much pleased with what I saw of the assiduous attention paid to the sick in the Cholera Infirmary, and I believe that a reference to the returns will show that the disease, considering the class of inmates of the institution, has been very successfully treated. These returns will, however, I have reason to think, convey too favourable estimates of the results of the treatment, for it seemed to me that several of the patients, chiefly I believe on account of their own urgency, were discharged from the hospital before there could have been evidence of that complete re-establishment of the secretions necessary to ensure from the risks of febrile reaction or cerebral congestion. I willingly admit that when in the state of collapse opiates have been carefully avoided these risks are lessened; yet it accords with my experience to conclude that where there has been a long stage of collapse, say from twelve to twenty-four hours, the re-establishment of the secretions is not coincident with the return of warmth to the surface, and a tolerable pulse at the wrist. These latter conditions may be present for many hours, and the recovery be seemingly complete, and yet there may be subsequent febrile reaction, or head or gastric symptoms; and we cannot have a fair assurance that such will not take place, unless we have evidence that the excretions of bile and of urine have been restored. I would further add that during my attendance at the Cholera Infirmary I recollect four patients who were discharged at the solicitation of their friends, with head symptoms so fully developed as to leave little doubt in my mind that the issue would be fatal; but, with every abatement on these accounts, from the success of the treatment as exhibited by the returns, the impression left on my mind is that Dr. Mosgrove's mode of managing that state of collapse of cholera is the best with which I am acquainted, and it has the additional advantage of being very simple. If, however, it be expected that in this mode of treatment, as compared with others, we have been provided with a means of materially lessening the mortality of cholera, I have no hesitation in stating it to be my belief that such expectations will not be realized.

5. Having expressed myself thus so far favourably to the mode of treating the collapsed state of cholera witnessed by me in the Infirmary, it is necessary that I should explain myself a little more fully. If the plentiful draughts of cold water be had recourse to with a view of bringing about a distinct and more rapid reaction, I would remark that it does not seem to me that this object is, in general, effected by them. The result of my observation is distinctly that in the large majority of cases in which collapse is fairly present, the draughts of water and the vomiting are not followed by any sensible effect on the pulse; and I have witnessed many cases in which the issue was in recovery, in which the state of pulseless collapse continued from six to twenty-four hours after the commencement of the exhibition of the cold water. I would, moreover, observe, that in some instances the frequent draughts of water seemed to me to keep up an irritable state of the stomach, which it was afterwards troublesome to subdue. From all this I infer that whatever good may accrue from allaying the sufferings of thirst, or from giving the opportunity for replacement of the watery constituents of the blood by the free exhibition of cold water, this good is altogether hidden. We have not in the kind of cases of which I

speak any sensible evidence of it, yet I agree with those who would give diluents in cholera according to the desire of the patients, and I cannot but think that they are of advantage; but the exhibition of cold water did not seem to me the most influential part of the treatment in the Cholera Infirmary. I would attach much more importance to the praiseworthy assiduity with which external heat was continuously applied throughout the period of collapse, then to the judicious use of ammonia, and the abstinence from the use of opium. I cannot but think that Dr. Mosgrove, in giving almost undivided prominence to the use of cold water, has withdrawn attention from the strong points in his system of management of collapsed cholera. These I take it to be are assiduous watchfulness and care, and an avoidance of officious medical interference.

6. I cannot close this letter without alluding to the system of treatment which, during the past epidemic, has been chiefly followed in the Jamsetjee Jejeebhoy Hospital. I have not as yet found time to arrange the cases and the returns, with the view of determining the success which has attended it. It has chiefly differed from that pursued in the Cholera Infirmary in acetate of lead pills, according to Dr. Graves' formula, having been given while the serous purging continued; in the use of sinapisms and warm turpentine, and in the less assiduous application of external warmth. Calomel in general was not exhibited till signs of reaction began to appear, and there was in the appearance of the excretions or the character of other symptoms a distinct indication for its use.

7. In the Transactions of the Medical and Physical Society, I have expressed my opinion of the efficacy of the acetate of lead if given while the pulse is of tolerable strength, also of its inapplicability to those extreme cases of the disease in which great collapse follows trifling discharges; and I would now add, as the result of my experience in this epidemic, that the acetate of lead has proved altogether powerless in restraining the serous discharge, occurring after collapse has fully set in. Whether an attempt to restrain these discharges after fully-formed collapse has taken place is an indication to be kept in view is probably an open question in the pathology of the disease, which need not be discussed here. The acetate of lead, however, has been inefficacious for the purpose, and I should be indisposed again to have recourse to it under the same circumstances of the disease; the more so because it is possible enough that the drug lying dormant and inert in the alimentary canal during the period of collapse may have an injurious influence by its rapid absorption on the occurrence of reaction.

8. The question of the period when calomel should be given with the view of favouring the recurrence of the secretions may probably be stated in the following manner:—It cannot be expected to be efficacious before reaction has commenced, and the capillary circulation has been restored: if we give calomel during the period of collapse, it will, if retained, be inoperative, till the circulation has in a measure been restored; it is ready to come into play when required, and in a system of treatment in which simplicity is aimed at, its limited use in this manner has an advantage over that more scientific system which refrains from the use of calomel till the state of the pulse and skin tell that the circulation is beginning to revive.

9. I quite concur with Dr. Mosgrove in his disapproval of the use of opium in the stage of collapse, but we must not on this account abstain from it in the stage

of initiatory diarrhœa, when the disease threatens, and may yet be prevented by its judicious use: opium is inexpedient in the stage of collapse, because there is no indication which it can fulfil; it is injurious in the same stage, because it may accumulate in the alimentary canal, and exercise, on the commencement of reaction, by its more ready absorption, its influence at a time when the influence of opium is most adverse to the processes which are being re-established in the system.

10. It is impossible to see much of this disease, and not anxiously endeavour to learn how its ravages may be best lessened. It seems to me that at the present time we have reached a certain point, it is this,—that there is scope for medical treatment in the way of preventing the access of the disease when it threatens, and of guiding the patient through the dangerous complications which not unfrequently attend the stage of reaction; but that when the collapsed stage of cholera has fairly set in, the question may arise, whether we have not in this stage a condition somewhat analogous to the cold stage of ague, or the initiatory fever of small-pox, a state which cannot be checked, but which must run a certain course, varying in intensity and duration in different instances, and that all that we can pretend to attempt is, to place the patient in circumstances as favorable as possible for enabling the system to outlive this stage of the disease. This we do by pure air, external heat, occasional stimulants, the removal of irritation (including thirst in this last category), and by diluents, to give the absorbents the opportunity, if they will, of replacing the water which has transuded from the blood into the alimentary canal. It is because Dr. Mosgrove's system of management of the collapsed stage of cholera aims at efficiently fulfiling all these indications, while it abstains from the use of that which may be injurious, that it seems to me worthy of commendation and of further trial. To view it in a higher light than this will, I venture to predict, lead to disappointment, and ultimately stand in the way of the realization of that amount of benefit which a temperate and rational estimate of its merits is I believe calculated to confer.

III.—*A Tabular Analysis of* Dr. Larkworthy's *Report, drawn up by* Dr. Leith.

Of the cases successfully treated, the average time that each patient remained in the Infirmary was 1 day; of those which terminated fatally not quite 18 hours; the average quantity of water drank by each patient was $4\frac{1}{3}$ lbs.

Of 79 cases treated,

26 died, or 33 per cent., or 1 death in 3 cases;
53 discharged.

Of 79 cases treated, in 49 the pulse was imperceptible: of these cases 26 died, or 53 per cent., or rather more than half. In the remaining 30 cases the pulse was perceptible: these were all discharged from hospital. With reference to paragraphs 4 and 5 of the Report, it would appear that an error has been inadvertently made: Dr. Larkworthy says that he would deduct from the gross number of deaths those that died so immediately after admission as not to have received any treatment whatever, and instances—

1	No. 6
2	,, 40
3	,, 68
4	,, 75

4 Cases.

He further states that he would also exclude from the general number of deaths all those who were known to have taken opium in any shape prior to admission, and instances—

1	No. 59
2	,, 68
3	,, 75
4	,, 47
5	,, 80
6	,, 82

6 Cases.

These six cases and the four above-mentioned he adds together, and forms a sum of ten cases, which he deducts from the total number of deaths, inadvertently counting Nos. 68 and 75 twice.

Dr. Larkworthy, moreover, omits to set aside the recovered cases that had taken opium, and throws them into the scale against the selected deaths.

The total number of cases in which it is stated that a narcotic was taken before admission amounts to twelve, of which number five died, and seven were discharged.

IV.—*Memorandum of Cases of Cholera treated in the Jamsetjee Jejeebhoy Hospital.* By C. Morehead, M. D.

From the 17th of August to the 31st December 1849, 169 cases of cholera were received into the Jamsetjee Jejeebhoy Hospital: of these ninety-four died, and five remained under treatment on the 1st January. Of those admitted under the age of 10 years, the mortality was 69 per cent.; between 10 and 20 years, 63 per cent.; between 20 and 40 years, 58 per cent.

In those admitted, when the duration of the disease was under 5 hours, the mortality was 68·3 per cent.; between 5 and 12 hours, 61·2 per cent.; between 12 and 24 hours, 45·9 per cent.; above 24 hours, 59 per cent.

With the view of marking the varying rate of mortality at the different periods of the epidemic, the time during which it prevailed was divided into periods of about fifteen days in each. As the general result of this examination, it appeared that the mortality in the Jamsetjee Jejeebhoy Hospital between the 17th August and the 1st of October was at the rate of 77 per cent. But from the 1st October to the 31st December it did not exceed on an average 45·7 per cent.

The Cholera Infirmary was not opened till after the 1st October, so that in comparing the rate of mortality in the two institutions, 45·7 per cent. must be taken as that which represents the mortality in the Jamsetjee Jejeebhoy Hospital.

Twenty-one cases of cholera, admitted in the month of January, were treated in the manner followed in the Cholera Infirmary. Of the cases thus treated, ten died, being a mortality of about 48 per cent. So far, therefore, as the expe-

rience of the Jamsetjee Jejeebhoy Hospital has gone, there is no evidence of a decreased rate of mortality by that mode of treatment. During the prevalence of the epidemic, twenty cases of cholera occurred amongst the inmates of the hospital; of these, fifteen occurred in wards in which there were patients ill with cholera, and in several of the instances ill in the adjoining beds: three of the remaining cases happened in the wards which adjoined to the cholera sick; the other two in the wards allotted to those affected with foul ulcers and tubercular leprosy. In the other wards of the hospital, though they were all filled with patients, no case occurred.

Memorandum on the Geology of Bombay. By A. H. Leith, Esq., M. D.

At a Meeting of the Society held in April 1849, Dr. Leith exhibited a collection of Fossils which he was about to transmit to England, and which he had collected since August 1846 from the aqueous rock of Bombay. They consisted chiefly of shells of an entomostracon, the impression of the elytron of a coleopterous insect, —the rana pusilla, a tortoise belonging to the *Pleuroderal Elodians*, a section not known now to exist in Asia; and from the vegetable kingdom impressions of reeds, &c.; a piece of bamboo, calamites encrusted with coal; two undetermined strobiliform and cormiform bodies, and a leguminous fruit. Dr. Leith remarked that this rock, which extends over a great part of the island, is shown by the organic remains to be the deposit of a fresh water lake, or the estuary of a great river, and by its position with relation to the sea level, and to the trappean rocks, to have been subjected to elevation or depression during repeated volcanic eruptions.

REGULATIONS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

M.DCCC.XLVIII.

Objects.

I. The encouragement of the cultivation of Medical Science and its collateral branches, by discussion at periodical meetings, and by the publication of original communications.

Constitution.

II. The Society is composed of Ordinary, Corresponding, and Honorary Members.

Ordinary Members.

III. Under the head of Ordinary Members are to be classed all who contribute to the funds of the Society, and all who are admitted in accordance with Regulation VII.

IV. All Medical men residing in India, who can produce certificates of a regular medical education, are eligible as Ordinary Members.

V. Medical Officers of Her Majesty's or the Hon'ble Company's Service are elected Ordinary Members of the Society, on application by letter addressed to the Secretary.

VI. Qualified Medical Practitioners, not belonging to Her Majesty's or the Hon'ble Company's Service, are elected by ballot at the ordinary meetings of the Society, and a majority of three-fourths of the Members present is necessary to secure the election.

VII. Assistant Surgeons on first entering the Bombay Medical Service are considered Ordinary Members of the Society, free of the payment of admission fee and annual subscription, and continue so for a period of two years, after which, should they not intimate their wish to be considered Ordinary Members by payment of the regulated admission fee and annual subscription, they are considered to have withdrawn from the Society.

Payments.

VIII. Ordinary Members to pay an admission fee of Rs. 5, and an annual subscription of Rs. 12, payable in advance in the month of January of each year.

IX. Ordinary Members absent from India are not chargeable with subscriptions for the period of their absence.

X. Ordinary Members neglecting to pay their annual subscription for two successive years, are considered to have withdrawn from the Society, and are liable to have their names erased from the list of Members, under a Resolution passed to that effect at an ordinary meeting of the Society.

Corresponding Members.

XI. Ordinary Members, on retiring from service in India, on being proposed and seconded at an ordinary meeting of the Society, are eligible by ballot, as Corresponding Members. A majority of four-fifths of the Members present is necessary to secure their election.

Honorary Members.

XII. Medical men of celebrity not residing in India are eligible as Honorary Members. On being proposed and seconded, at an ordinary meeting of the Society, they may be elected at the next meeting by the unanimous consent of the Members present.

Election of Office-Bearers.

XIII. The Committee of Management of the Society consists of eight Members, elected annually from among the Ordinary Members resident in Bombay, by the general vote of the Ordinary Members residing under the Government of Bombay.

XIV. The voting lists are circulated in the first week of November of each year, and the result of the election is declared at the next ordinary meeting of the Society.

XV. In the event of vacancies occurring in the Committee between the periods of election, such vacancies to be filled up in rotation, by the individuals who commanded the number of votes next to those of the Members returned at the last election.

XVI. A President, and two Vice-Presidents of the Society, are elected annually from among the Members of the Committee of Management, by the Members of the Society present at the ordinary meeting at which the annual election of the Committee is declared.

XVII. The Secretary of the Society is elected biennially from among the Ordinary Members resident in Bombay, at the ordinary meeting held in the month of January of alternate years, or, on the occurrence of a vacancy, at any other ordinary meeting of the Society.

Committee of Management.

XVIII. The Committee of Management have the general direction of the affairs of the Society, and decide on what communications are to be published in the Transactions of the Society. They keep minutes of all their proceedings, which are entered into the Minute-book of the Society, and read at the following ordinary meeting.

XIX. When questions of importance to the stability and interests of the Society arise, such shall be submitted by the Committee for decision to the Ordinary Members residing *under the Government of Bombay.* The majority of votes necessary to decide any question, to be determined according to its importance, and fixed at the time by the Committee.

XX. It shall form part of the duty of the Committee to give due consideration to all suggestions offered by Members of the Society.

President and Vice-Presidents.

XXI. The President shall take the chair, and conduct the business at all meetings of the Society.

XXII. In the absence of the President one of the Vice-Presidents shall take the chair, and conduct the business of the meeting; and in case neither be present, the senior Member at the meeting shall preside.

Secretary.

XXIII. The Secretary is a Member of the Committee of Management *ex-officio.*

XXIV. It shall be his duty to enter into the Minute-book of the Society, minutes of the proceedings of all meetings and transactions of the Society, and, in communication with the Committee of Management, to conduct the details of business, and carry on the correspondence of the Society.

XXV. The Secretary shall prepare an annual statement of the receipts and disbursements of the Society, to be laid before the ordinary meeting in the month of January of each year.

XXVI. To enable the Secretary to perform these duties, a suitable establishment is entertained, under the sanction of the Committee of Management, confirmed at an ordinary meeting of the Society.

Meetings.

XXVII. Ordinary meetings of the Society are held in Bombay on the first Saturday of every month.

XXVIII. The chair being taken, the order of business shall be as follows:—

1. The Minutes of the last meeting, and those of subsequent Committee meetings, to be read and confirmed.
2. The announcement and election of new Members, in accordance with Regulations V. VI. and VII.
3. The election of Corresponding and Honorary Members.
4. The reading of letters, and the discussion of any ordinary business of the Society which may be before the meeting.
5. The announcement of presents and donations.
6. That of papers and dissertations received since the last meeting.

XXIX. After the announcement of the papers and dissertations, the President shall call upon the Secretary to read one or more of them, and shall subsequently invite the Members to discuss any particular part of them which they may consider deserving of remark.

XXX. No new business shall be introduced until that which is before the meeting has been concluded.

Papers and Dissertations.

XXXI. All papers and dissertations presented to the Society to be considered the property of the Society.

XXXII. The Transactions of the Society are published by the Secretary in communication with the Committee, as often as circumstances will admit.

XXXIII. A copy of each publication is presented to the Honorary and Corresponding Members of the Society, and to every Ordinary Member, who at the time of publication is a contributor to the funds of the Society.

N. B.—The Medical Board has kindly permitted that letters and communications on the business of the Society, to the address of the Secretary to the Society, may be transmitted *under cover* to the Secretary to the Medical Board. In this manner they will pass free of postage, but not otherwise.

Members are requested to pay the amount of their subscriptions to Messrs. Leckie and Co., the Society's Agents.

PROCEEDINGS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY,

FOR THE YEAR 1849.

COMMITTEE OF MANAGEMENT.

President.

JAMES BURNES, K. H., F. R. S.

Vice Presidents.

C. MOREHEAD, M. D. A. H. LEITH, M. D.

Members.

H. GIBB, Esq. H. J. CARTER, Esq.
R. D. PEELE, Esq. H. GIRAUD, M. D.

Secretary.

JOHN PEET, Esq.

The following gentlemen were elected Ordinary Members of the Society :—

A. Burn, M. D. ; B. A. Bremner, M. D. ; J. McAlister, Esq. ; R. Haines, M. B. ; G. N. Ballingall, Esq. ; J. Sinclair, Esq. ; E. Downes, Esq. ; J. W. Winchester, Esq. ; G. P. Maitland, Esq ; A. Harris, Esq. ; H. Miller, M. D. ; M. Larkworthy, Esq. ; J. M. Joseph, Esq. ; J. Daubeny, Esq. ; T. Boycott, Esq. ; J. Kennedy, Esq. ; J. Pirie, Esq. ; F. J. Mosgrove, Esq. ; J. Yuill, Esq. ; and M. Stovell, Esq.

The following gentlemen were elected Corresponding Members of the Society :—

G. Smyttan, Esq. ; J. Glen, Esq. ; James Burnes, M. D., K. H., F. R. S. ; J. Walker, Esq. ; A. Henderson, Esq. ; H. Johnstone, Esq. ; and R. H. Kennedy, Esquire.

The following letters were read :—

1. A letter from B. A. Bremner, M. D., expressing his gratification at being elected a Member of the Society.

2. Letters from C. G. Wiehe, Esq., and J. McAlister, Esq., notifying their wish to continue Members of the Society.

3. A letter from A. Burn, M. D., intimating his wish to be elected a Member of the Society.

4. A letter from the Secretary to the Geographical Society, forwarding a copy of the Society's Transactions.

5. A letter from Sir James McGrigor, thanking the Society for a copy of their Transactions, forwarded to the Library at Chatham, established by the Medical Officers of the Army.

6. A letter from C. Morehead, M. D., Superintendent of the Grant College, expressing to the Society the thanks of the College for a copy of the Transactions.

7. A letter from Dr. Kinnis, Deputy Inspector General H. M.'s Hospitals, accompanying his third contribution to the Military Medical Statistics of China.

8. Letters from James Daubeny, Esq., and T. Boycott, Esq., intimating their wish to continue Members of the Society.

9. A letter from Assistant Surgeon Bean, at Peshawur, intimating his wish to defer becoming a Member of the Society for the present.

10. A letter from Mr. Richardson, accompanying his account with the Society.

11. From John Kinnis, M. D., Deputy Inspector General of H. M.'s Hospitals; C. Morehead, M. D., Superintendent of the Grant Medical College; and H. J. Carter, Esq., Secretary to the Bombay Branch Royal Asiatic Society, acknowledging the receipt of a copy of the Society's Transactions.

12. From J. Pirie, Esq., intimating his wish to be elected a Member of the Society.

13. From John Kinnis, M. D., accompanying a communication from Dr. Heffernan, H. M.'s 60th Rifles.

14. From Assistant Surgeon Calder, stating that it is not his intention to become a Member of the Society.

15. From J. Patch, Esq., late Physician General, announcing his departure for Europe, and consequent withdrawal from the Society.

16. From James Daubeny, Esq.; J. Yuill, Esq.; and W. Neilson, M. D.; also from Dr. Burnes, K. H., F. R. S., tendering his resignation of the Office of President, on his departure for Europe.

Communications presented.

1. Annual Report of the European General Hospital, for 1847. By M. Stovell, Esq., Surgeon. Presented by the Medical Board.

2. Six cases of Poisoning by Opium, examined after death, with observations; also a case illustrative of the passage of mud into the minute branch in the act of drowning. By H. J. Carter, Esq., Assistant Surgeon, Bombay Establishment.

3. Contributions to the Military Medical Statistics of China. By John Kinnis, M. D., Deputy Inspector General H. M.'s Hospitals.

4. Extract from the Annual Report of the H. C. S. "Nitocris," by Assistant Surgeon J. M. Hyslop, referring to the "date mark," as observed by that gentleman whilst in the River Euphrates.

5. Case of Secondary Purulent Deposit in the Lungs, following a Wound of the Scalp. By John Peet, Esq.

6. Notes on the Pathology and Treatment of Disease of the Brain, as observed in the European General Hospital at Bombay. By C. Morehead, M. D.

7. Notes on the cases of Poisoning by Datura treated in the Jamsetjee Jejeebhoy Hospital.

8. Two cases of Hydrophobia, one by J. Boyd, Esq., and another, in which chloroform was tried, by John Peet, Esq.

9. Statistical Report of the Native General and Jamsetjee Jejeebhoy Hospitals, from the 1st January 1845 to the 31st December 1848. By John Peet, Esq.

10. Annual Returns of Patients in the Bombay Lunatic Asylum, exhibiting the nature of their diseases, &c., for the years 1847 and 1848, and a tabular statement of the admissions, discharges, deaths, &c., from the year 1842 to 1848, with a few observations. By W. Arbuckle, M. D., Surgeon to the Lunatic Asylum.

11. Three cases of Cholera, successfully treated with unusually large doses of acetate of lead and ammonia. By R. D. Peele, Esq.

12. Cases of Paralysis, following Acute Inflammation of the Intestines. By W. C. Coles, M. D.

13. Case of Idiopathic Tetanus, in which ether was used. By C. Morehead, M. D.

14. Case of Traumatic Tetanus, treated with the vapor of chloroform. By John Peet, Esq.

15. Cases of Tetanus, treated with chloroform. By J. W. Winchester, Esq. Presented by the Medical Board.

16. Note of a case of Poisoning by Strychnia. By John Peet, Esq.

17. Remarks on the treatment of Delirium Tremens in the Europen General Hospital, in the year 1848. By A. Burn, M. D.

18. A few remarks upon the subject of Aneurism and Disease of the Heart, in Natives. By John Peet, Esq.

19. Notes of a case of Hepatitis, in which an Abscess pointed and was opened at the Epigastrium. By W. C. Browne, M. D. Presented through Dr. Burn.

20. Contributions to the Military Medical Statistics of China. By John Kinnis, M. D., Deputy Inspector Gencral H. M.'s Hospitals.

21. The description of a case in which a large Tumor was removed from the Face. By Assistant Surgeon Camcron. Presented by the Medical Board.

22. Some account of the cases received into the Native Garrison Hospital, from the Mooltan Field Force. By Assistant Garrison Surgeon Coles.

23. Cases of Hcpatic Abscess, in which the abscess was artificially opened. By C. Morehead, M. D.

24. On the use of Anæsthetic agents in the practice of Midwifery. By J. R. Miller, Esq.

25. On the Climate and Fever of Sukkur. By N. Heffernan, M. B., H. M.'s 60th Rifles. Presented through Dr. Kinnis, Deputy Inspector General H. M.'s Hospitals.

26. A few Remarks on the Plain of Jumrood, with a view to elicit its capabilities as a site for an encampment for European and Native Troops. By John Doig, Esq.

27. Reports on Cholera.

Donations for the Library.

Transactions of the Bombay Geographical Society. Presented by the Society.

Report of the Grant Medical College. Presented by Dr. Morehead.

The Dublin Quarterly Journal of Medical Science.

Journal of the Bombay Branch Royal Asiatic Society.

Transactions of the Royal Society of Arts and Sciences of Mauritius.

The Dublin Quarterly Journal of Medical Science. Presented by the Editor.

A Descriptive Account of the Fresh Water Sponges in the Island of Bombay, with observations on their structure and development *(Genus Spongilla)*. By H. J. Carter, Esq.

FOR THE YEAR 1850.

COMMITTEE OF MANAGEMENT.

President.

J. A. SINCLAIR, Esq.

Vice Presidents.

H. GIBB, Esq. C. MOREHEAD, M.D.

Members.

A. H. LEITH, M.D. H. GIRAUD, M.D.
H. J. CARTER, Esq. W. C. COLES, M.D.

Secretary.

JOHN PEET, Esq.

The following gentlemen were elected Ordinary Members of the Society :—

B. White, Esq.; J. Scott, Esq.; N. P. Foley, Esq.; J. Crawford, Esq.; W. G. Hunter, Esq.; and H. Dean, Esq.

The following letters were read :

1. From C. Morehead, M.D., Superintendent Grant Medical College, forwarding the Annual Report of the Grant Medical College for the year 1848-49.

2. From A. H. Leith, M.D., Acting Secretary to the Medical Board, accompanying a copy of a work on the Statistics of Cholera. By Assistant Surgeon Balfour.

3. From C. S. John, M.D., Deputy Inspector General of H. M.'s Hospitals, Madras, thanking the Society for a copy of the Society's Transactions.

4. From C. G. Wiehe, M.D., Civil Surgeon, Sattara, enclosing an order for Rupees 12, subscription in advance for 1850.

5. From A. H. Leith, M.D., Acting Secretary to the Medical Board, accompanying a paper on Difficult Parturition, by Assistant Surgeon F. Manisty.

6. From Commander Montriou, I. N., forwarding a copy of the Magnetical and Meteorological Observations, made at the Observatory, Colaba, for 1846.

7. From the Secretary to the Medical Board, forwarding two cases of Hydrophobia, and one of Tetanus.

8. From Dr. Kinnis, M.D., on his departure for Europe, thanking the Society for a set of its Transactions.

9. From Assistant Surgeon Gilbert, at Belgaum, imtimating his wish to defer becoming a Member of the Society for the present.

10. From Assistant Surgeon H. Dean, Scinde, intimating his wish to continue a Member of the Society.

11. From Commander Montriou, I. N., accompanying a copy of the Magnetical and Meteorological Observations made at the Observatory, Colaba, for 1847, Part I.

12. From C. Morehead, M.D., Superintendent Grant Medical College, forwarding the Annual Report of the Grant Medical College for the year 1849-50.

13. From G. J. Forbes, Esq., Acting Secretary to the Asiatic Society, acknowledging the receipt of a copy of the Society's Transactions.

Communications Presented.

1. Report of the Cholera Infirmary. By A. Larkworthy, Esq.

2. Note of the Cases of Cholera treated in the Jamsetjee Jejeebhoy Hospital. By Dr. Morehead.

3. Illustrations of Difficult Parturition, and of the value of tartarized antimony as an agent in Obstetricy. By F. Manisty, Esq. Presented by the Medical Board.

4. Notes on an Opium Eater. By M. Stovell, Esq.

5. Post Mortem Examinations in two cases of Dysentery, presenting unusual Morbid Appearances. By M. Stovell, Esq.

6. Notes on the Climate of the Cape of Good Hope. By M. Stovell, Esq.

7. A case of Hæmorrhage, fatal, from Wound of the Axillary Vein. By H. Giraud, M.D.

8. Notes on the effects of the Bite of the Phoorsa. By C. Morehead, M.D.

9. Report of the 1st Battalion of Artillery, at Ahmednuggur. Presented by the Medical Board.

10. A case of Hepatic Abscess in a Boy, 10 years of age, treated by External Incision. By H. Miller, M.D.

11. Case of Hydrophobia. Presented by the Medical Board.

12. Case of Strangulated Inguinal Hernia, illustrative of the good effects of the use of chloroform in effecting reduction. By M. Stovell, Esq.

Donations for the Library.

Reports of the Grant Medical College for the years 1848-49 and 1850. Presented by Dr. Morehead.

Statistics of Cholera. By Assistant Surgeon Balfour, Madras Establishment. Presented by the Medical Board.

Two copies of the Meteorological Observations for 1846, and Part I. of 1847, made at the Observatory, Colaba. Presented by direction of the Right Hon'ble the Governor.

LIST OF MEMBERS

OF THE

MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.

ORDINARY MEMBERS, BOMBAY PRESIDENCY.

The asterisk (*) marks those Members who are absent on furlough or sick leave.

* Anderson, A. T., Esq., Assistant Surgeon.
* Arbuckle, W., M.D., Surgeon.
Arnott, F. S., M.D., Surgeon.
Ballingall, G. R., Esq., Assistant Surgeon.
* Bairnsfather, G., M.D., Assistant Surgeon.
Bayne, R., M.D., Assistant Surgeon.
Bowie, J. M., Esq., Assistant Surgeon.
Boyd, J., Esq., Surgeon.
* Boycott, T., Esq., Assistant Surgeon.
Brown, G. F. H., Esq., Assistant Surgeon.
* Burn, A., M.D., Surgeon.
Campbell, W., M.D., Assistant Surgeon.
Carter, H. J., Esq., Assistant Surgeon.
Carnegie, D. A., M.D., Assistant Surgeon.
Clay, F. W., Esq., Assistant Surgeon.
Coles, W. C., M.D., Assistant Surgeon.
Cotes, H., Esq., Assistant Surgeon.
Crawford, W., Esq., Assistant Surgeon.
Craig, J., Esq., Assistant Surgeon.
Crespigny, E. De, M.D., Assistant Surgeon.
* Cruikshank, P., Esq., Assistant Surgeon.
Daubeny, J., Esq., Assistant Surgeon.
Davey, W., Esq., Assistant Surgeon.
Davidson, R. H., M.D., Assistant Surgeon.
Dean, H., Esq., Assistant Surgeon.
Doig, J., Esq., Superintending Surgeon.
Don, J., M.D., Surgeon.
Downes, E. J., Esq., Surgeon.
Foley, N. P., Esq., Assistant Surgeon.
Fogerty, W. K., Esq., Surgeon in Bombay.
* Fraser, G. J., M.D., Assistant Surgeon.
* Freeman, J. E., M.D., Assistant Surgeon.
Gibb, H., Esq., Inspector General.
Gilbert, J., Esq., Assistant Surgeon.
Gillanders, W. P., Esq., Assistant Surgeon.
Giraud, H., M.D., Assistant Surgeon.
Gray, P., Esq., Surgeon.
Grierson, D., M.D., Surgeon.
Haines, R., M.B., Assistant Surgeon.
Hamilton, J. J., Esq., Surgeon.
Hunter, W. G., Esq., Assistant Surgeon.
Hussey, R., Esq., Assistant Surgeon.
Hyslop, J. M., M.D., Assistant Surgeon.
Imlach, C. G. E., M.D., Assistant Surgeon.
Impey, E., Esq., Assistant Surgeon.
Johnstone, T. B., M.D., Assistant Surgeon.
Joseph, J. M., Esq., Surgeon in Bombay.
* Keith, J., Esq., Surgeon.
Keith, J., M.D., Assistant Surgeon.
Kirk, R., Esq., Surgeon.
Lawes, V., Esq., Assistant Surgeon.
Leith, A. H., M.D., Surgeon.
Lord, R. G., M.D., Assistant Surgeon.
* Mackenzie, J. M., M.D., Assistant Surgeon.
Mahaffy, E., M.D., Assistant Surgeon.
Maitland, G. P., Esq., Assistant Surgeon.
McAlister, J., Esq., Assistant Surgeon.
McKenzie, T., Esq., Surgeon.
McKenzie, G. J., Esq., Assistant Surgeon.
McKenzie, J., Esq., Assistant Surgeon.
McLennan, J., M.D., Physician General.
Mead, C. C., Esq., Assistant Surgeon.
Miller, J. R., M.D., Assistant Surgeon.
Miller, H., M.D., Surgeon in Bombay.
Mills, J., Esq., Assistant Surgeon.
Morehead, C., M.D., Surgeon.
Mosgrove, F. J., Esq., Assistant Surgeon.
Murray, W. R., M.D., Assistant Surgeon.
Murray, T., Esq., Assistant Surgeon.
Neilson, W., M.D., Surgeon.

Nicholson, B. A. R., Esq., Surgeon.
* Peach, W., Esq., Assistant Surgeon.
Peele, R. DeC., Esq., Assistant Surgeon.
Peet, J., Esq., Assistant Surgeon.
Pirie, J., M.D., Assistant Surgeon.
Pitman, H., Esq., Assistant Surgeon.
Rimington, J. S., Esq., Assistant Surgeon.
Reynolds, J. W., Esq., Assistant Surgeon.
Ritchie, D., M.D., Surgeon.
Sanderson, J. T., Esq., Assistant Surgeon.
Scott, J., Esq., Surgeon.
* Shekleton, J. F., M.D., Assistant Surgeon.
Silvester, C. J., Esq., Assistant Surgeon.
Sinclair, J., Esq., Surgeon General.
* Skelding, W., Esq., Assistant Surgeon.
* Smith, J. Y., M.D., Assistant Surgeon.
Stewart, J. G., M.D., Surgeon.
Stocks, J. C., Esq., Assistant Surgeon.
Stovell, M., Esq., Surgeon.
Style, M., Esq., Assistant Surgeon.
Taylor, W. B., Esq., Superintending Surgeon.
* Thom, W., Esq., Assistant Surgeon.
Thompson, M., Esq., Surgeon.
Vaughan, J., Esq., Assistant Surgeon.
Yuill, J., Esq., Surgeon in Bombay.
Ward, T. T., Esq., Assistant Surgeon.
Wiehe, C. C., M.D., Assistant Surgeon.
Wilmot, J. H., Esq., Assistant Surgeon.
Wilson, H., M.D., Assistant Surgeon.
* Winchester, J. W., Esq., Surgeon.
Wood, J., Esq., Assistant Surgeon.
Wright, A., Esq., Surgeon.
Wyllie, D., M.D., Assistant Surgeon.
W. B. O'Shaughnessy, Esq., Deputy Assay Master, Calcutta.
P. Jackson, Esq., Bengal Establishment.
J. Shaw, Esq., Assistant Surgeon, Madras Establishment.
A. Anderson, Esq., Acting Surgeon to H. B. Majesty's Superintendent in China.

CORRESPONDING MEMBERS.

G. Smyttan, Esq.
J. Glen, Esq.
James Burnes, K.H., F.R.S.
J. Walker, Esq.
J. Murray, Esq.
J. S. Law, Esq., B.C.S.
Captain Shortrede, Superintendent of the Trigonometrical Survey.
A. Henderson, Esq.
Dr. Pruner, Chief Physician to the Military Hospital, and Professor in the Medical College at Cairo.
H. Johnstone, Esq.
R. H. Kennedy, Esq.
M. M. J. Desjardin, Esq., Secretary to the Society of Natural History in Mauritius.
Dr. Laidlaw, Alexandria.
R. H. Hunter, Esq., H. M.'s Service.

HONORARY MEMBERS.

Sir George Ballingall, Professor of Military Surgery, Edinburgh.
J. Baron, M.D., Cheltenham.
J. C. Crosse, M.D., Norwich.